Sept. 9, 1952 H. W. NORRIS 2,610,224

ELECTRIC FENCE

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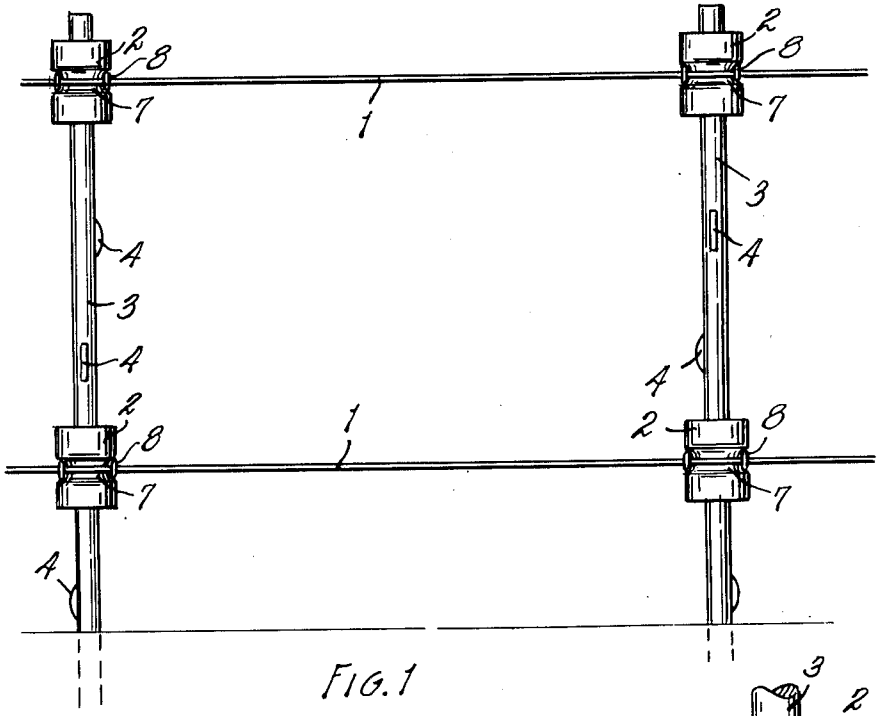


FIG. 1

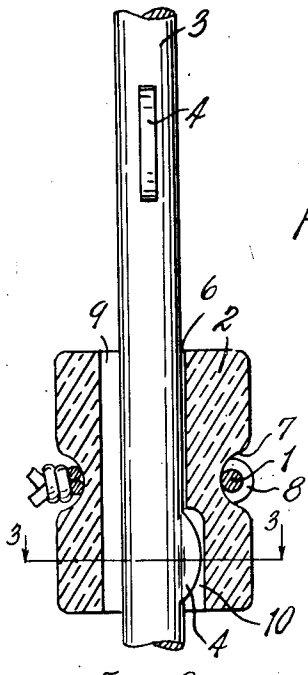


FIG. 2

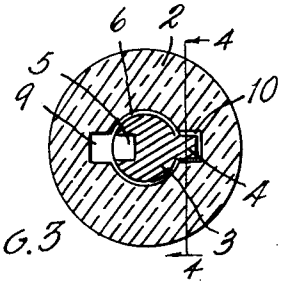


FIG. 3

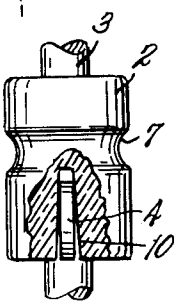


FIG. 4



FIG. 5

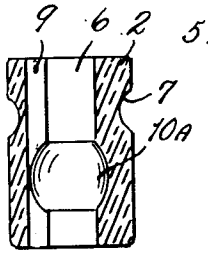


FIG. 6

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ELECTRIC FENCE

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This invention relates to improvements in an electric fence.

The principal objects of this invention are:

First, to provide a post and insulator structure for an electric fence which may be produced and erected at reduced cost.

Second, to provide an electric fence on which the height of the strands may be readily changed for enclosing various kinds of animals.

Third, to provide a fence post for an electric fence which may be inexpensively produced from bar stock.

Fourth, to provide an insulator for an electric fence which may be easily installed and locked in any of a plurality of vertically spaced positions on a fence post.

Fifth, to provide an insulator having a self-locking engagement with a fence post so that the insulator may be installed on the post without the use of tools and will resist upward pulls on the fence strands.

Other objects and advantages pertaining to the details and economies of the invention will be apparent from the following description and claims.

The drawings, of which there is one sheet, illustrate a preferred form of my fence structure and one modified form of insulator therefor.

Fig. 1 is an elevational view of one span of electric fence constructed with my posts and insulators.

Fig. 2 is a fragmentary elevational view showing the connection between the insulator and the fence post, the insulator being shown in vertical cross section.

Fig. 3 is a transverse cross sectional view along the line 3—3 in Fig. 2.

Fig. 4 is a fragmentary cross sectional view along the line 4—4 in Fig. 3.

Fig. 5 is an enlarged fragmentary elevational view of a portion of the fence post shown in Figs. 1 and 2, the post being broken away in vertical cross section to illustrate the construction thereof.

Fig. 6 is a perspective cross sectional view of a modified form of insulator for my fence structure.

Fig. 1 illustrates a span of a fence in which the strands 1 are supported upon insulators 2 and arranged to be electrified in any of several well known manners to enclose livestock of different kinds. The insulators are carried on posts 3 which I prefer to make of bar stock steel of ⅜ inch diameter. The posts 3 are provided with a plurality of vertically spaced arcuate fins 4 ar-

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ranged to engage the insulators as will be more particularly described presently. The fins 4 are conveniently formed as is shown in Fig. 5 by passing the posts through a press or forging hammer having suitable dies therein so that the fins are pressed outwardly from one side of the post by a die on the press which is driven into the opposite side of the post forming a recess 5. The fins are preferably staggered around the circumference of the post to prevent the recesses 5 from being aligned along one side of the post in which position they would weaken the resistance of the post to bending in one plane. The fins 4 are conveniently formed with these arcuate shapes as shown but other outlines may also be used. While a round rod is illustrated, rods of polygonal or irregular cross section may be used.

The insulators 2 may be made of any suitable nonconducting material but I prefer to use glazed porcelain. The insulators are generally tubular having a central bore 6 which is slightly larger in diameter than the diameter of the post so as to slide freely therealong. The outsides of the insulators are provided with annular grooves 7 in which the strands of the fence are secured by suitable tie wires 8 (see Fig. 2).

The central bore 6 is provided with a vertically extending groove 9 which extends the full length of the bore and is of such width and depth as to pass the fins 4 as the insulator is slid along the post. The opposite side of the bore 6 is provided with a short notch or groove 10 which extends partially along the bore and is preferably stopped below the annular groove 7 so that the cross sectional area of the insulator is not unnecessarily reduced at the plane of the annular groove. The short groove 10 is arranged to be slid over and engage any of the fins 4 to support the insulator at the desired height on the post. As is most clearly shown in Fig. 4, the notch 10 is preferably tapered in width so that it will have a wedging or gripping action on the fins 4.

In erecting the fence the posts 3 are easily driven into the ground in the desired position and the insulators 2 are slid over the tops of the rods to the desired fin. In fitting the insulators to the rods the complete grooves 9 are brought into alignment with the fins 4 and the insulators slid downwardly over the fins until the insulator reaches the desired height on the pole. At that time the insulator is rotated until the incomplete groove 10 will slide over and engage the desired fin. The engagement of the fin with the short groove supports the insulator and holds it against rotation on the post. The strands of the fence

may be then attached to the insulator in any of several well known manners. The wedging action of the fins in the notches 10 will resist upward pulls on the fence strands as when an animal attempts to force his way under a strand or when the fence extends from a level run to an uphill run.

Fig. 6 illustrates a modified form of insulator 2A which may be used where positive resistance to upward pull on the fence strand is desired. The insulator is provided with the same bore 6, groove 9 and external groove 7 but instead of the short groove 10 is provided with an internal annular groove 10A. The groove 10A is arranged to receive the fin 4 on the post when the insulator is rotated to move the long groove 9 out of registry with the fin 4. The fin 4 is thus engaged on its top and bottom to hold the insulator vertically stationary.

The groove 10A may extend completely around the bore as shown or may be formed only part way therearound from the vertical groove 9. The internal groove 10A may be formed by molding the insulator in two halves so that the groove is easily formed and then joining the two mating halves.

It will thus be seen that a fence may be erected with my post and insulators at a minimum of cost and effort and that the only tools required are a sledge to drive the posts and a pair of pliers to tie the fence strands to the insulators. The strands may be positioned at varying heights above the ground and should it be desired to raise or lower a strand after the fence has once been erected to enclose a different type of animal, the insulator supporting that strand may be easily lifted from that supporting fin and twisted to align the complete groove 9 with the adjacent fin so that the insulator and strand may be raised or lowered to any desired level. The insulator is then twisted to bring the incomplete groove in alignment with the selected fin and the insulator lowered onto the fin in its new position. When the modified form of insulator is used the insulator is rotated when the fin is in the longitudinal groove and opposite the annular groove 10A.

I have thus described a highly practical commercial embodiment of my fence structure so that others may reproduce the same or with such minor modifications as are desired without further description.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. An electric fence structure comprising a rod adapted to be driven into the ground as a post and having a series of longitudinally spaced and vertically extending arcuate fins positioned in spirally related positions therealong, said fins being formed of material extruded from the body of the rod, and an insulator defining an axial passage having a sliding fit with said rod, said insulator having a radially projecting and axially extending interior groove formed along one side of and extending the full length of said passage whereby said insulator may be slid along said rod with said fins passing through said groove, said insulator further defining a second internal groove opening to the opposite side of the passage from said first groove and extending from the bottom of said insulator only part way along said passage and arranged to receive one of said fins with the top of the fin engaged with the upper end of the second groove to support said insulator on said rod.

2. An electric fence structure comprising a rod adapted to be driven into the ground as a post and having a series of longitudinally spaced and vertically extending fins positioned in angularly offset positions therealong, said fins being formed of material pressed from the body of the rod, and an insulator defining an axial passage having a sliding fit with said rod, said insulator having a radially projecting and axially extending interior groove formed along one side of and extending the full length of said passage whereby said insulator may be slid along said rod with said fins passing through said groove, said insulator further defining a second internal groove opening to said passage and extending from the bottom of said insulator only part way along said passage and arranged to receive one of said fins with the top of the fin engaged with the upper end of the second groove to support said insulator on said rod.

3. An electric fence structure comprising a rod adapted to be driven into the ground as a post and having a series of longitudinally spaced and vertically extending fins positioned therealong, and an insulator defining an axial passage completely therethrough having a sliding and rotative fit with said rod, the wall of said passage being axially grooved along the full length of one side thereof whereby said insulator may be slid along said rod with said fins passing through said groove, the wall of said passage further defining a second internal groove angularly offset from the full length groove opening to said passage and extending from the bottom of said insulator only part way along said passage and arranged to receive and engage one of said fins with the top of the fin engaged with the upper end of the second groove to support said insulator on said rod.

4. An electric fence structure comprising a rod forming a fence post, said rod having a projection extending from the side thereof, and an insulator defining a central passage arranged to slide over said rod, said insulator having a groove formed in the side of said passage and extending only partially along the length of said bore arranged to receive and engage said projection and support said insulator against rotation on said rod, said insulator further defining another groove extending completely along said passage and angularly offset from said first groove, said complete groove being arranged to pass said projection as said insulator is slid along said rod.

5. A post comprising a rod of metallic bar stock having a plurality of vertically extending, vertically spaced arcuate fins positioned therealong, said fins being formed of material extruded from the body of the rod by a die pressed into the opposite side of the rod from said fins, said fins being positioned in angularly offset locations around said rod, there being a substantial vertical distance between each of said fins.

6. An electric fence structure comprising a rod adapted to be driven into the ground as a post and having a series of longitudinally spaced and vertically extending fins positioned therealong, and an insulator defining an axial passage completely through the insulator and having a sliding and rotative fit with said rod, said passage being axially grooved completely along one side thereof and annularly grooved whereby said insulator may be slid along said rod with said fins passing through said axial groove and rotated to position one of said fins in said annular groove to support said insulator on said rod.

7. An electric fence structure comprising a rod adapted to be driven into the ground as a post and having a series of longitudinally spaced projections positioned therealong, and an insulator defining an axial passage completely through the insulator and having a sliding and rotative fit with said rod, said passage being axially grooved completely therealong whereby said insulator may be slid along said rod with said projections passing through said axial groove and may be rotated to position one of said projections out of registry with said axial groove to support said insulator on said rod.

8. An electric fence structure comprising a rod adapted to be driven into the ground as a post and having a series of vertically spaced projections thereon, and an insulator defining an axial passage having a sliding fit with said rod, said passage being axially grooved completely along one side thereof whereby said insulator may be slid along said rod with said projections passing through said axial groove, said passage further defining a groove arranged to engage the upper surface of one of said projections for supporting said insulator on said post.

HAROLD W. NORRIS.

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