Feb. 13, 1962 R. E. QUERENGESSER 3,021,116

FENCE CONSTRUCTION

Filed May 11, 1959

3 Sheets-Sheet 1

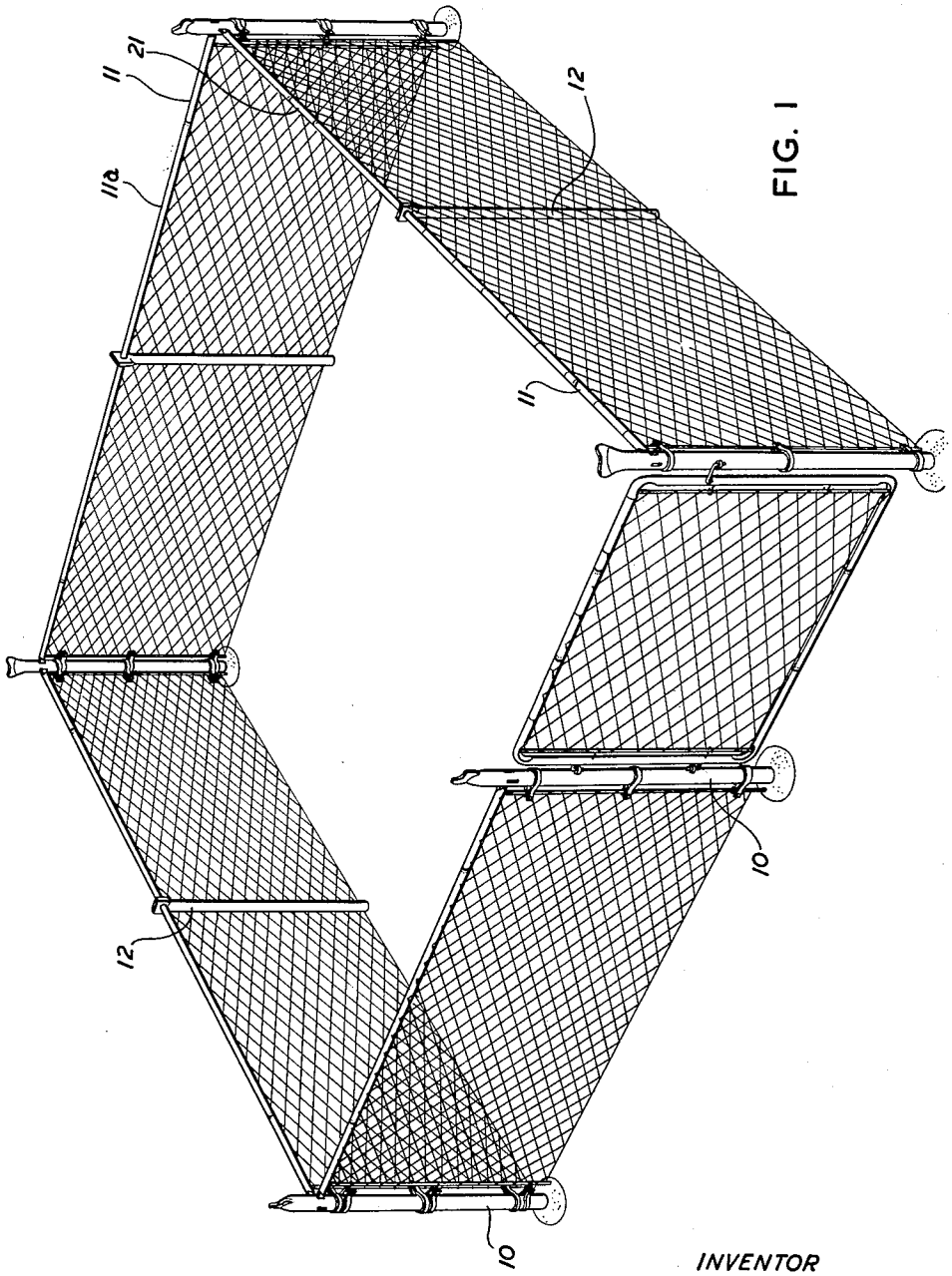


FIG. 1

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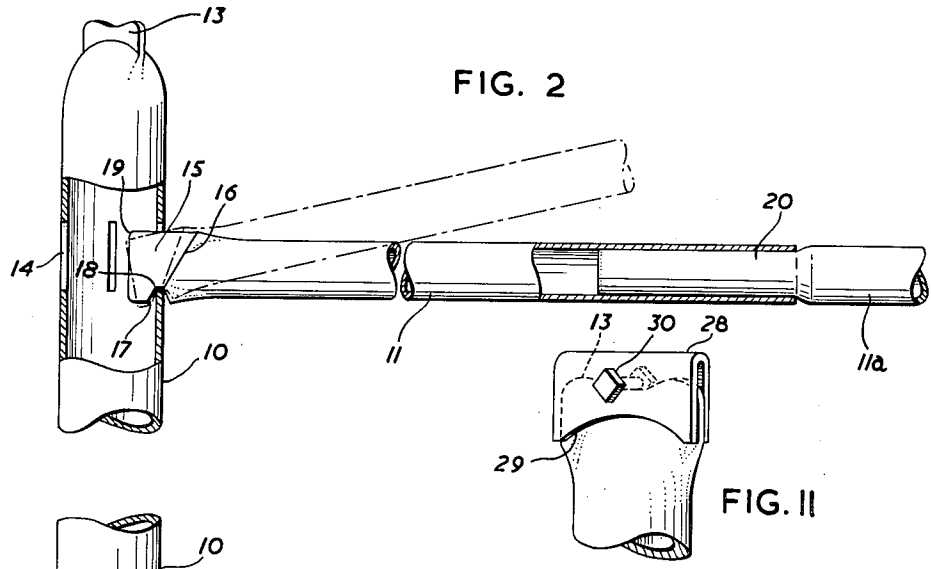


FIG. 2

FIG. 11

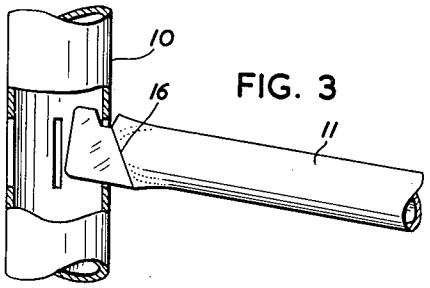


FIG. 3

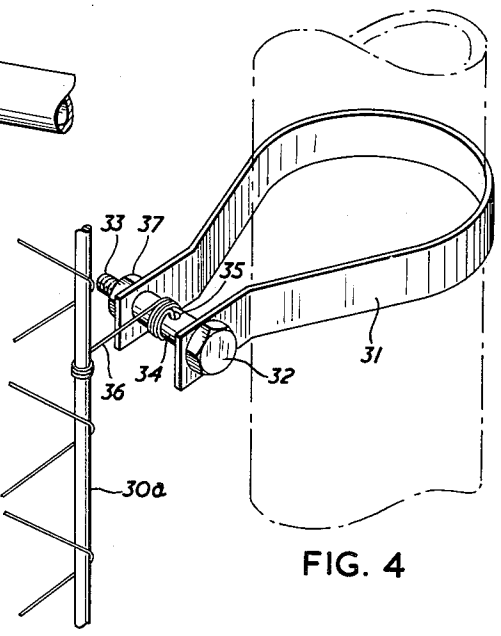


FIG. 4

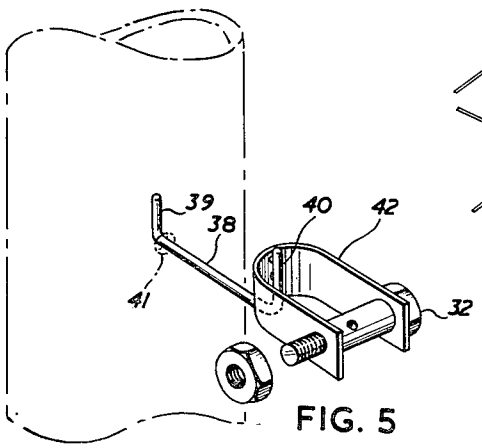


FIG. 5

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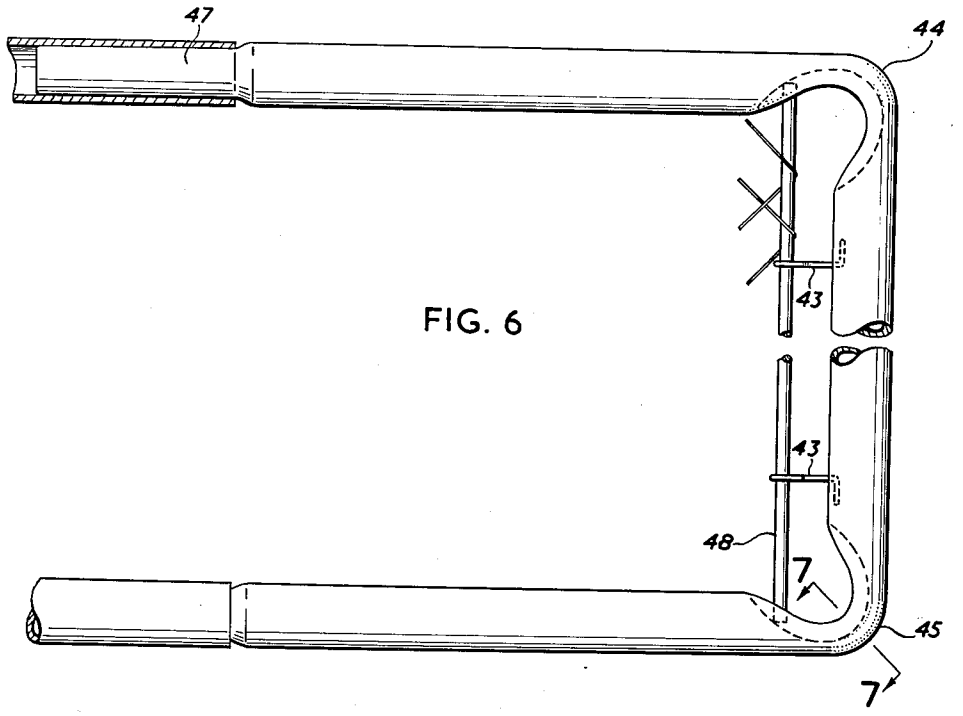


FIG. 6



FIG. 7

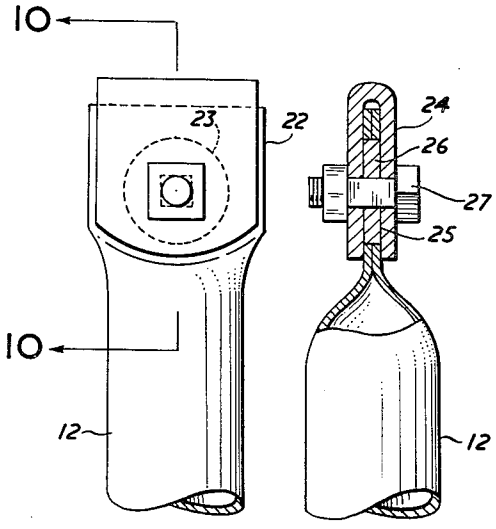


FIG. 9

FIG. 10

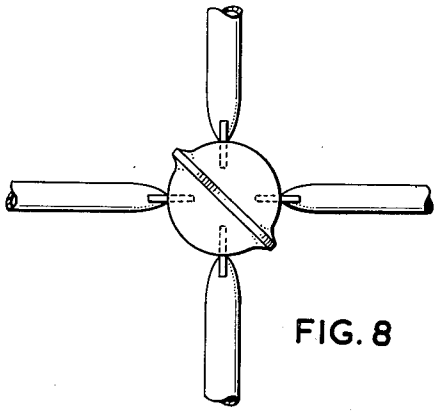


FIG. 8

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FENCE CONSTRUCTION

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Filed May 11, 1959, Ser. No. 812,544
4 Claims. (Cl. 256—72)

This invention relates to fence structure and more particularly structure embodying a framework composed of tubular structural elements.

For a number of years fence structure embodying tubular structural elements has been a generally accepted form and which includes tubular terminal posts, tubular transverse bars connecting therewith and intermediate line posts adapted to engage the transverse tubular bars and support them intermediate the terminal posts. On this framework a mesh or other wire fabric, mesh or the like, is stretched and secured, usually requiring special stretching mechanism. In particular, the tubular posts must be capped with special capping members which may be united in a pressed fit internally or externally of the post or capping members may be employed secured by grub screws. The intermediate line posts likewise are usually provided with a capping member having a looped superstructure through which the horizontal tubular elements are passed, whereas the horizontal tubular members are usually secured together in desired lengths by metal sleeves fastened thereto and are connected to the terminal or corner posts by means of special brackets which are applied to the posts and connected to such elements by means of bolts and the like. This requires a substantial number of parts which complicate the work of erection of the fence structure while adding to cost substantially and a more cumbersome looking structure results than that which might be desired.

The present invention avoids these general disadvantages in prior structures by providing a plurality of simple structural tubular elements which may be connected readily in a fence structure which does not require the addition of separate capping elements, guiding elements and the like which quickly produces a fence of sturdy, simple character and of particularly neat appearance.

The invention is generally identified with tubular structural elements having a portion thereof at and adjacent one end, flattened to close said end and form thereon an exteriorly projecting integral flange element disposed to have its longitudinal axis co-axial to or parallel to the longitudinal axis of such structural element, said flange being receivable in a complementary recess of a co-operating element. The terminal or corner posts of the fence structure are formed with slots for receiving interconnecting transverse, terminal elements of this general character, the flanges of which enter said slots and are locked in a simple manipulation, such transverse elements being designed telescopically to engage tubular stringers to provide for desired length of extent of rail thus formed whereas line posts of similar construction employ an orificed flange through which the connecting structural members are passed for connection and support. The fencing fabric is connected and stretched on the structure in a particularly simple manner by elements which form part of an anchoring means therefor. The invention also embodies novel gate structure including U-shaped terminal elements adapted to be connected telescopically and including inversely upset corners in each U-shaped element forming channels on the inside of the corners to constitute sockets for terminal rods securing the fence fabric.

The invention will be clearly understood by reference to the following detailed specification taken in conjunction with the accompanying drawings.

In the drawings:

FIGURE 1 is a perspective view of an erected fence structure made according to the present invention.

FIGURE 2 is an enlarged partly sectional elevation of the top portion of a corner post and illustrating the mounting and securement of a connecting structural element and the adjustability of the latter (by way of dotted line) when extending to a post disposed at a higher elevation.

FIGURE 3 is an enlarged fragmentary partly sectional view of a corner post and its engagement with a connecting member when the latter extends to a post disposed at a lower elevation.

FIGURE 4 is an enlarged fragmentary perspective view of the manner of stretching and connecting the wire fabric on the fence structure.

FIGURE 5 is an alternative connection to that disclosed in FIGURE 4.

FIGURE 6 is an enlarged fragmentary partly sectional elevation of a gate construction for the fence structure of the present invention.

FIGURE 7 is a section taken on the line 7—7 of FIGURE 6.

FIGURE 8 is a top plan view of a corner post showing transverse connecting elements fragmentarily and connected to the post.

FIGURE 9 is an enlarged fragmentary view of the top of a line post according to the present invention showing a fitting secured thereto for the purpose of driving the post during erection of the fence structure.

FIGURE 10 is a section taken on the line 10—10 of FIGURE 9; and

FIGURE 11 is an illustration of a fitting adapted to be placed on the flange of a corner post for driving purposes in the case where posts are driven into position.

Referring to the drawings, and first of all to FIGURE 1, the terminal and/or corner posts are indicated by the numeral 10 interconnected by the transverse tubular terminal elements 11 and tubular stringers 11*a*, supported intermediate of the terminal posts by the line posts 12. All of these elements are formed in substantially similar manner as simple utilitarian elements which do not require additional capping or connecting accessories for completion of the fence structure.

Referring to FIGURE 2, it will be noted that the corner and terminal posts 10 are formed as a tubular element, a portion of one end of which is flattened to close the tube and form the exteriorly projecting integral flange 13. These posts are formed also with suitable circumferentially spaced narrow slots 14 which may be up to four in number if necessary but usually two slots disposed at 90° to one another is sufficient.

The transverse terminal connecting members 11 are formed in a substantially similarly manner, a portion thereof at and adjacent to one end thereof being flattened to provide the co-axial flange 15 receivable in a slot 14 of a terminal post 10. The line of juncture between the flange 15 and the tubular portion of the transverse connector is preferably disposed at an incline to the longitudinal axis of the connector as indicated at 16 and directly adjacent the free end of the flange on one side thereof a notch 17 is formed having diverging or flared side edges. The base 18 of the notch is designed to form the fulcrum point for this terminal element and the notch 17 is located in the flange 15 in such a manner that the distance between the base 18 of the notch and the opposed end corner 19 of the flange is slightly less than the radius of a circle centering at the base of the notch and passing through the upper edge of a slot 14 of a post 10 when the notch 17 of element 11 is straddling the lower edge of said slot 14. Accordingly, it will be apparent that the transverse terminal element 11 may be quickly and securely

engaged with the terminal post **10** merely locating the notched edge of its flange adjacent the slot of such post, inclining the structural element **11** downwardly in relation to the vertical post **10** and hooking the notch **17** over the lower edge of such slot **14** so that by swinging the structural element **11** upwardly to horizontal position, the flange **15** will cleanly pass through the slot **14** and will be retained in such engagement against possible withdrawal so long as the structural member is maintained in a substantially horizontal position or upwardly inclined position in relation to this corner post. Moreover, due to the flaring of the side edges of notch **17** and due to the inclined line of juncture **16** between flange **15** and the tubular portion of element **11**, this element may be swung to an upwardly inclining position, as shown in dotted lines in FIGURE 2, as to dispose such element in desired line for ultimate connection of the element by means of other elements to a terminal post disposed at a higher elevation. The connection to the other post is achieved by means of an intermediate stringer element or elements **11***a* and a second terminal element **11** required to span the distance in question. The second terminal element **11** connecting with a terminal post disposed at the higher elevation to that with which the initial connection is effected, requires the element **11** to be rotated to dispose the notch **17** upwardly and to engage the uppermost edge of a slot **14** as illustrated in FIGURE 3 so that the flanged and notched structure of the elements **11** may thus be reversed according to post elevation requirements in the erection of the fence structure.

The intermediate connecting elements preferably comprise the transverse tubular elements **11***a* having a reduced tubular terminal shank **20** which, as shown in FIGURE 2, may be telescoped into the open tubular end of an element **11** as to provide a neat and firm connection whereas final connection may be effected by a short connecting sleeve **21** (FIGURE 1). In result, therefore, the fence structure will only employ a minimum of independent union sleeves as compared to their prevalence in the prior art.

The intermediate line post **12**, as shown in FIGURES 9 and 10, embodies a similar general construction, a portion thereof at and adjacent to one end being flattened to form the co-axial flange **22** of substantial length as to provide for the central orifice **23** of a size to receive therethrough the tubular portion of a transverse connecting element **11**. Consequently, the line posts are likewise of simple unitary construction. These posts may be driven in position by means of a U-shaped bracket **24** having a central channel **25** adapted to receive the flange **22** of the post. This bracket includes a washer element **26** of a size to fit the orifice **23** of flange **22** so that by inserting the washer in this orifice and bolting the bracket **24** on flange **22** by means of bolt **27**, the bracket provides a striking head which will permit driving of the post into position without damaging the flange or terminal end of the post. In this instance while it is preferred that the terminal or corner posts should be set in concrete, these posts by reason of their construction may also be driven into position where this is desired. This is accomplished by providing the bracket **28** of generally U-shaped form provided with a lower curved contour **29**. The channel formed by this bracket receives the flange **13** of a terminal post while the lower curved contour **29** of the bracket will snugly fit the curved tubular closed end of the post, where as by reinforcing the bracket by means of the bolt **30** as to avoid spreading of the sections thereof, the post may be driven into position.

It will be apparent from the above description that erection of fence structure employing the elements of the present invention is a particularly simple operation. On the one hand, the terminal post **10** and line post **12** may be erected in position whereupon by the very simple means of connection, viz. the interengagement of notched flanges **15** of the transverse terminal elements **11** with the slots **14** in the posts and the slotting of intermediate stringer elements **11***a* through the line posts, the fence structure is quickly erected and any one line thereof completed when the final tubular sleeve **21** is in place, and which completely eliminates the additional steps normally required by prior art, including the securement of brackets on the terminal posts, the bolting of the brackets to transverse members, and the capping of the terminal posts and line posts.

The fencing fabric is very readily added to the fence structure thus comprised.

At one end of a line of fence structure the free end of the fabric has a rod passed through the terminal loops thereof similar to the manner illustrated in FIGURE 4, and by means of brackets, similar to bracket **31**, FIGURE 4, such rods are anchored to the terminal post at that end of the line. At the opposite end of the line bracket **31** may be applied to the post which incorporates the special bolt member **32** formed with the reduced screw threaded end **33**. The larger shank **34** of the bolt is formed with a transverse orifice **35** into which one end of an anchoring wire **36** is designed to be projected. The opposite end of this wire is secured to the rod **30***a*, thus by rotating the bolt **32** of each bracket **31**, thus employed, the fencing fabric is readily stretched to meet requirements, whereupon the nut **37** is tightened as to anchor the fabric in taut condition on the fence structure. The fabric otherwise is secured to the top rail of the fence structure by means of suitable wire clips. Clamps **31** may be replaced to improve the appearance of the structure and simplify attachment, which is done preferably by employing, in lieu thereof, simple rigid wire connectors **38** having offset arms **39** and **40**, the arm **39** being passed through a suitable small orifice **41** in a terminal post and the arm **40** being adapted to engage the loop of a clevis **42** which incorporates the special bolt **32** so that the fence fabric may be stretched and tightened in the same manner as previously described. Wires or small clamps connecting to a rod **30***a* and connectors **38** at the opposite end of the line may serve as the anchoring for the opposite end of the fabric.

Alternatively, connectors having a looped end to encircle a rod **30***a* and an offset arm to anchor a terminal, such as the connector **43** for the gate fabric illustrated in FIGURE 6, may be employed as a means of anchoring one end of the fabric in a line of the fence.

A simple gate for the fence structure is generally illustrated in FIGURE 6 and which may be formed from two or more tubular elements. The two forming the terminal ends of the gate are bent as at **44** and **45** by inversely upsetting the tube as to provide a reinforced corner wherein the wall of the tube on the inside of the bend is channelled inwardly, as at **46** (FIGURE 7), providing for right angular bends of reinforced character forming the convenient channel **46** which may be employed as an anchoring means for the terminal rod anchors of the fabric. The free ends of this bent tubular element may be formed with the reduced shanks **47**, whereas the free ends of the complementary bent tubular element form sockets for the shanks **47**. Of course, this latter element is made shorter where a small gate is in question and where a long gate is required longer than that providable by two bent sections, both of these may be formed with the shanks **47** and tubular extensions fitted thereto as to provide for the length required.

The channel **46** at the upper lower corners of the gate forms a particularly effective anchor for the terminal rods **48** carried at the ends of the fabric adapted to finish the gate. In this instance, the channel **46** slopes downwardly as it merges and terminates with the top rail of the gate and slopes upwardly as it merges with and terminates in the lower rail of the gate. This, therefore, provides a natural socket for receiving the ends of the rods **48**, which may be pulled and/or levered into position, as shown in FIGURE 6, to stretch the fabric on the gate to a

sufficient degree, the bar being anchored intermediate to the top and bottom rails of the gate by means of the connectors 43 which loop around the rods 48 and/or anchored in the vertical tubes of the gate, one at each end.

What I claim as my invention is:

1. A fence comprising a post and a rail, said post having a substantially vertical slot, said rail having a flat terminal portion of a thickness slightly less than the lateral dimension of said slot, said terminal portion having a notch in one edge adjacent to the end thereof, the distance from the bottom of said notch to the opposite edge of the terminal portion being substantially the vertical dimension of said slot, whereby said terminal portion may be placed in said slot with said notch in engagement with the lower or upper edge of said slot, and when the rail is swung about said notch as a pivot said terminal portion will be locked in said post, said rail comprising at least two sections in separable telescoping engagement with each other.

2. A fence post and rail structure as claimed in claim 1, in which said rail is tubular and its terminal portion comprises a flattened end portion thereof, the tubular nature of said rail affording said separable telescoping engagement for the sections thereof.

3. A fence post and rail structure as claimed in claim 1, in which the opposed edges of said notch are divergent outwardly toward said one edge, whereby to accommodate swinging movement of said rail relative to said post after locking of said terminal portion thereof in said post, to thereby accommodate the angle between the post and rail to adjacent sloping ground contour.

4. Sectional fence structure comprising in combination

two end posts, at least one line post, and a rail element comprising at least two sections in separable telescoping engagement with each other and extending between said end posts and having separably engaging connections with said posts to provide a line of fence, said separably engaging connections between the rail and posts each including a substantially vertical slot in each end post and a complementary flat terminal portion at each end of the rail of a thickness slightly less than the lateral dimension of the complementary post slot, said terminal portions each having a notch in one edge adjacent to the end thereof, the distance from the bottoms of the respective notches to the opposite edges of the respective terminal portions being substantially the vertical dimension of the slot of the complementary post, whereby said terminal portions may be placed in the said post slots with their notches in engagement with the upper or lower edges of said slots, and when said terminal portions are swung about said notches as pivots said terminal portions will be locked in said posts, and said line post being apertured for through passage and support of said rail element.

References Cited in the file of this patent

UNITED STATES PATENTS

336,634	Gage	Feb. 23, 1886
656,390	Condon	Aug. 21, 1900
2,199,518	Coleman	May 7, 1940

FOREIGN PATENTS

734,057	Great Britain	July 20, 1955