Resilient Guard Fence

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RESILIENT GUARD FENCE.

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To all whom it may concern:

Be it known that I, RALPH E. MAUDLIN, a citizen of the United States, and a resident of San Francisco, county of San Francisco, State of California, have invented a new and useful Resilient Guard Fence, of which the following is a specification.

This invention relates to highway fences of a type which function as a resilient guard to prevent a road vehicle from going over the edge.

The object of my invention is to provide a resilient guard fence adapted to be erected along the sides of a road, especially at dangerous points and curves on the road, and which will serve to absorb the shock of a vehicle striking it in a more effective way than prior structures of this type.

My invention is carried out in the construction shown in the accompanying drawings in which:

Figure 1 is a front elevation of my fence, including two supporting posts.

Figure 2 is an enlarged end view of my fence in section showing the swinging bracket relation to a square post.

Figure 3 is a view similar to Figure 2, but shows the fence mounting on a round post.

Figure 4 is an enlarged cross-section of the square post showing the bracket carrying angles clamped to the post, and Figure 5 is a similar section of the round post showing the means for securing the bracket thereto.

Figures 6 and 7 show respectively in section a square and a round post with a double fence bracket projecting therefrom as used at certain corners or curves along the road to better brace the fence at these positions.

Figure 8 is a reduced plan view of a curved roadway showing my fence installed along one side thereof.

Figure 9 is a perspective sketch of a modification of my fence using poles instead of wire mesh.

Simply described, my invention consists of a resiliently woven wire fence supported on brackets away from the fence posts, which brackets are pivoted to the posts so that upon shock of a vehicle the brackets will swing toward the impact point of the fence and the resilient wire structure thereby contribute its maximum pull to yieldingly break the force of the blow.

In Figure 1 the woven wire fence is shown at 1 supported on swinging brackets 2 pivotally mounted on the posts 3 which are rigidly planted in the ground 4.

As it is intended that my fence shall go in place on the present or existing fence posts where now in position along the highways, the brackets take two forms, one suited to square posts as shown in Figure 2 and one more suited for round posts as shown in Figure 3, and at the beginning of certain curves or turns two brackets are used as shown in Figures 6 and 7.

In either case the general form of the bracket is about the same. In Figure 2 it comprises a channel iron section 2 hinged to the square post 3 by pivots or bolts 4 passing through angle irons 5 clamped to the post by bolts 6 passing through or alongside of the post as may be easiest. The channel iron is curved forwardly at the upper and lower ends as shown and the ends bent back to form a pair of angular braces 7 and with a short straight brace 8 secured to the channel inside of each curved end.

The open groove of the channel is turned outwardly and seated in the groove around the entire bracket is a tightly stretched wire rope 9 to form a resilient suspension for the fence material 1 which passes over the portion of this wire rope which is exposed between the upper and lower projections or "horns" of the bracket and is secured thereto by wire clips or any other suitable means.

The ends of the wire rope 9 are given a turn or two about themselves at 10, then each is split into its strands, which are then fanned out as shown at 11 and also securely clipped or otherwise firmly secured to the fence material so that the ends extend in opposite directions, securely anchored to the fence material.

By the construction described it will be seen that any pressure put against the fence material between two posts will cause the brackets on these two posts to swing toward one another in resisting the longitudinal pull on the fence resulting from such pressure, and that the resiliency of the fence material over a distance passing many posts will contribute to react against the pressure, as the brackets for a considerable distance will all swing on their pivotal mounting in gradually diminishing amounts.

The fanning out of the suspension rope or cable 9 and securing to the fence material as shown at 11 relieves the strain from any
local attaching means used for securing the wire fence material to the cable. In the construction shown in Figure 2, the bracket could only swing to about right angles to the position shown, but the round post construction shown in Figure 3 permits the bracket to swing any distance, for in this construction the bracket comprises a heavy piece of pipe bent to form the bracket with the cable 9 passing through the pipe and emerging from holes 12 in the side of the pipe to the point where it is bent to form the angular braces 7, and the pipe bracket is secured to the round fence post 5 by wire loops 13 which are twisted at 14 to form a hinge loop around the pipe and at the free ends 15 to form a hinge loop around the post.

Owing to the great friction of the loop around the post, the brackets will swing in the small loop first and then, if the shock against the fence is very heavy, the bracket will pull the large loop bodily around the post, thus permitting the maximum deflection of the fence material near the point of impact.

In case the impact be directly over a post, the fence material will yield between the horns of the bracket and be resisted by the stretching of the wire cable 9 and the further resistance afforded by the pull of its fanned out ends 11 secured to the fence material.

In practice the brackets do not project at right angles to the road, but at a slant as indicated in Figure 8 from the posts “A”, so that a vehicle traveling in the direction of the arrow would immediately deflect one upon striking it, or a similar result would follow if a vehicle ran into it headlong from a branch road entering the main road from the opposite side only.

To hold the brackets all at an angle as mentioned with the fence material stretched to a high tension, it is necessary to anchor its extreme ends to a “dead man” or fixed rigid posts as shown at “B”.

Also at the convex curves of the road or at sharp turns it is desirable to use a pair of brackets on each post as shown at “C” in Figure 1 and detailed respectively for square and round posts in Figures 6 and 7.

When double brackets are thus used, I tie them together against too much angular spreading by means of chains or wires 16 (Figure 6).

At the concave corners the tensioned material has a tendency to pull away at the center of the suspending cable span between the horns of the brackets, and to overcome this at these points I use a chain or wire tie from the bracket to the cable as shown in Figure 3 at 17, and on the convex curves and corners, the tendency of the material being to draw inwardly against the post, I secure a stiff slat or strap vertically on the back of the fence material at one or both sides of the bracket as shown in Figure 1 at 18.

While the complete invention as described includes the use of a resilient woven wire fence fabric, some advantages of the invention can be secured even without the wire mesh, as it is possible to suspend plain wires or poles from the cables 9 as shown in the perspective sketch in Figure 9 and wherein suitable bars or poles 19 are secured at their ends to the cables by wires 20 or any other suitable connections.

In the construction just described it will be apparent that a shock against the poles will result in the brackets swinging as previously described and a longitudinal pull will be placed on all the poles while the succeeding brackets and their cables yield variously in diminishing amount away from the point of shock.

I claim:
1. A roadway guard fence of the character described, comprising spaced posts along the side of the road with brackets pivotally carried thereby and projecting toward the road, and fencing material supported on the brackets adapted to cause pivotal movement of the brackets when struck by a road vehicle.

2. A roadway guard fence of the character described, comprising spaced posts along the side of the road with brackets pivotally carried thereby and projecting toward the road, and fencing material supported on the brackets adapted to cause pivotal movement of the brackets when struck by a road vehicle, said fencing material being of a resilient nature whereby it will communicate a gradually decreasing pull upon the brackets of posts at increasing distances from the point of impact.

3. A roadway guard fence of the character described, comprising spaced posts along the side of the road with brackets pivotally carried thereby and projecting toward the road, and fencing material supported on the brackets adapted to cause pivotal movement of the brackets when struck by a road vehicle, said fencing material being resiliently secured to the brackets.

4. A roadway guard fence of the character described, comprising spaced posts along the side of the road with brackets pivotally carried thereby and projecting toward the road, and fencing material supported on the brackets adapted to cause pivotal movement of the brackets when struck by a road vehicle, said fencing material being resiliently secured to the brackets and the brackets being formed to permit deflection of the material directly over the brackets.

5. A roadway guard fence of the character described, comprising spaced posts along the side of the road with brackets pivotally carried thereby and projecting toward the road, and fencing material supported on the brackets adapted to cause pivotal movement of the brackets when struck by a road vehicle, said fencing material being resiliently secured to the brackets and the brackets being formed to permit deflection of the material directly over the brackets.
acter described, comprising spaced posts along the side of the road with brackets pivotally carried thereby and projecting toward the road, and fencing material supported on the brackets adapted to cause pivotal movement of the brackets when struck by a road vehicle, and said brackets projecting normally from the posts at other than at a right angle to the side of the road.

6. In a roadway guard fence of the character described, a post rigidly secured in the earth alongside of the road, forwardly projecting supports spacedly arranged on the post, a device tensioned between the supports, and fencing material secured to the tensioned device.

7. In a roadway guard fence of the character described, a post with a bracket secured thereto having spaced portions projecting from the post, a wire cable tensioned between the projecting portions and fencing material secured to the wire cable.

8. In a roadway guard fence of the character described, a post with a bracket secured thereto having spaced portions projecting from the post, a wire cable tensioned between the projecting portions and fencing material secured to the wire cable, the ends of said cable being entwined midway between the projecting portions and extended in opposite directions to and secured to the fencing material.

9. In a roadway guard fence of the character described, a post with a bracket secured thereto having spaced portions projecting from the post, a wire cable tensioned between the projecting portions and fencing material secured to the wire cable, the ends of said cable being entwined midway between the projecting portions, frayed out and extended in opposite directions to and secured to the fencing material.

10. In a roadway guard fence of the character described, a post with a bracket secured thereto having spaced portions projecting from the post, a wire cable tensioned between the projecting portions and fencing material secured to the wire cable, and a link from the central portion of the tensioned cable extending to the post.

11. In a roadway guard fence of the character described, a post with a bracket secured thereto having spaced portions projecting from the post, a wire cable tensioned between the projecting portions and fencing material secured to the wire cable, the means securing the bracket to the post comprising a pivotal connection whereby the bracket may hingedly swing upon the post.

12. In a roadway guard fence of the character described, a post with a bracket secured thereto having spaced portions projecting from the post, a wire cable tensioned between the projecting portions and fencing material secured to the wire cable, the means securing the bracket to the post comprising a pivotal connection whereby the bracket may hingedly swing around the post as a pivot.

13. In a roadway guard fence of the character described, a post with a bracket secured thereto having spaced portions projecting from the post, a wire cable tensioned between the projecting portions and fencing material secured to the wire cable, the means securing the bracket to the post comprising two sets of pivotal connections, one providing for hingedly swinging the bracket on the post and the other providing for hingedly swinging the bracket around the post as a pivot.

14. A roadway guard fence of the character described comprising a row of spaced posts alongside the roadway, a band of resilient wire mesh fabric tensioned from post to post and secured thereto, the securing means being adapted to permit longitudinal movement of the fence fabric across a plurality of the posts when the material is forced out of line between any two posts.

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