Feb. 7, 1928. 1,658,118

J. M. DODDRIDGE

GUARD RAIL FOR HIGHWAYS

Filed Jan. 23, 1925

FIG. 1

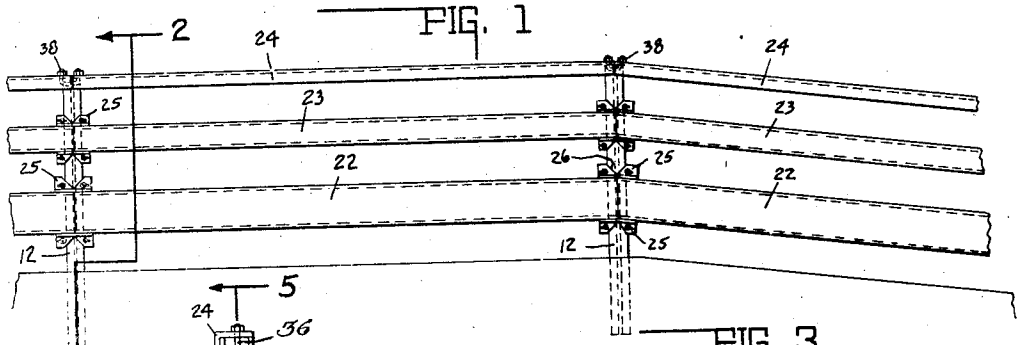


FIG. 2

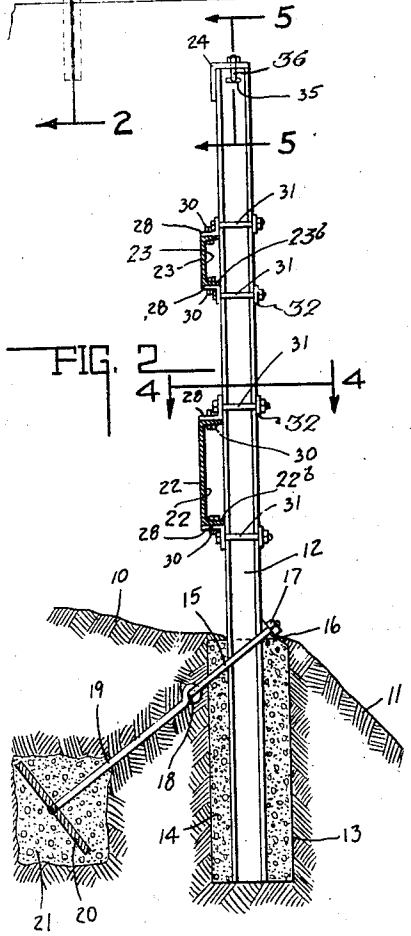


FIG. 3

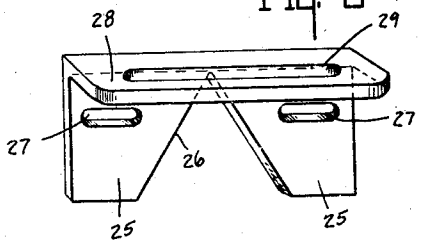


FIG. 4

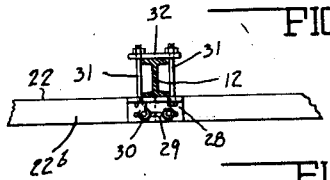
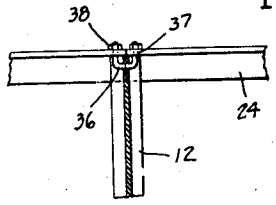


FIG. 5



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GUARD RAIL FOR HIGHWAYS.

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This invention relates to a protective fencing having certain characteristics such as strength, resiliency and adjustability.

The chief object of the invention is to construct a protective fencing of the character described such that no part of the protective surface is provided with an obstruction and with sufficient adjustability necessary for accommodating the fence to all curves and gradients.

Another main object of the invention is to utilize substantially standard iron forms or members and arrange the same such that the protective surface is exposed without any obstructions and that the standard forms are adjustable for all curves and gradients of the roadway.

One feature of the invention consists in the specific adjustable anchoring element whereby the fence may be adjusted to the inclination or grade of the roadway to be protected thereby.

The invention consists generically of a standard section elongated metallic member such as a channel iron or the like associated with a post or posts of I-beam cross section and the like, by means of an angle plate and standard bolts, the angle or mounting being the only member that is of particularly special conformation.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings Fig. 1 is a side elevational view of a protective fencing of the character described. Fig. 2 is an enlarged sectional view taken on line 2—2 of Fig. 1. Fig. 3 is a perspective view of the anchoring bracket. Fig. 4 is a sectional view taken on line 4—4 of Fig. 2. Fig. 5 is a sectional view taken on line 5—5 of Fig. 2.

In the drawings 10 indicates the roadway and 11 the ditch adjacent thereto. The roadway 10 may be of suitable material and as is customary, the fence may be placed at the junction of the shoulder with the ditch, and thus run substantially parallel with the road.

The post member is herein illustrated as an I-beam 12, the base or foot of which is anchored in a post hole 13 by a base portion 14 of concrete or the like. A U-bolt 15 is associated with a triangular but rectangularly arranged clamping member 16 through the medium of the nuts 17. The base of the U-bolt is received by an eye 18 of the bolt 19, the end of which is suitably secured to a dead man or anchoring plate 20 suitably anchored in the ground beneath the roadway as by the concrete weight 21. The foregoing arrangement provides that considerable variation in the relative positions of the dead man and the foot may be had, yet the same anchorage employed in each instance.

In the present invention there are shown three exposed surfaces, that is surfaces exposed to the roadway and that might be engaged by the passing vehicle running off the roadway. Herein the lowermost retaining member is shown as an enlarged channel 22. Positioned above the same is a smaller channel 23, while positioned above that and herein shown as forming the top rail, is an angle iron 24.

The means for securing these rails to the post whereby no vehicle-engageable portion of the rail is provided with abutments or obstructions is as follows: A bracket in the form of an angle iron includes a pair of wings 25 separated by a kerf herein shown in the form of a V-groove 26 that extends through one face of the angle iron. Each wing of this face includes an elongated slot 27 and these are in alignment with each other. Parallel to said slots 27, and in the other face 28 of the angle iron is an elongated slot 29. As shown clearly in the several figures a bolt and nut construction 30 is associated with an elongated opening in the side or flange 22^b, 23^b of the channel and is adapted to securely anchor the bracket or angle iron mounting to the channel, said bolt and nut constructions being associated with the slot 29. The foregoing associated permits the channels to abut each other but not in aligned relation unless the roadway is straight.

A pair of bolts 31 together with a plate 32, straddle the I-beam 12 and securely anchor the bracket to the I-beam and thus the channel to the post. The bolts 31 are associated with the openings 27 in the bracket. The bolt openings in place 32 are elongated to permit cocking of the bracket from the horizontal where the gradient of the roadway renders the same necessary.

As shown clearly in Fig. 2 the intermediate or roadway-exposed portion or web 22^a, 23^a of the channel is devoid of all obstruction since the mounting is associated only with the side flanges of the channel.

A further feature of the bracket is that it

can be readily bent either to close the angle or enlarge the angle of the V-groove and thus pitch or incline one channel with respect to the adjacent channel, and thus make the fencing substantially conform to or follow the grade of the road where the foregoing adjustment is necessary.

The angle iron 24 is herein shown positioned at the top of the post or I-beam 12 and said I-beam is provided at its upper end with an elongated slot 35 which receives a U-bolt 36, the two ends of which project upwardly through elongated openings 37 in the angle iron or angle irons 24 and the U-bolt is secured by suitable means such as nuts 38 to rigidly and adjustably mount the angle iron upon the I-beam to provide a top rail and a top for the fence.

The construction is such that ordinarily channel 22 is adapted to lie in the plane of the hubs or axles of motor vehicles, while channel 23 lies in the plane of the fenders. Thus a vehicle which for any reason leaves the roadway and engages upon the fence, is deflected thereby and will continue its travel along the fence without serious damage to the vehicle and without any damage to the fencing, since the fencing is of metallic construction and is relatively rigid, although in long sections engagement intermediate the post anchorages may cause the channel to flex slightly and thus throw the vehicle back toward the roadway by the engagement therewith. As shown clearly in Fig. 2 the lowermost channel 22 projects into the roadway a greater distance than the channel 23 which projects a greater distance than the top angle iron 24. A vehicle positioned upon the slope 10 and inclined toward the fence, therefore, generally will engage the fence first by the hub engaging channel 22 before the fenders engage channel 23 or the top or body engages angle 24.

It is to be noted that top rails 24, channel 23 and channel 22 each may be adjusted to a variety of necessary positions upon the I-beam. As the level of the road changes, or as the road wears away these adjustments, particularly as to height mounting, can be made without changing the initial I-beam mounting or position. These adjustments are secured by loosening the various nuts on the several bolts and shifting several parts as required after which the nuts on said bolts can be tightened to secure the channels or top rail in the adjusted position or positions.

The invention claimed is:

1. In a fence construction of the character described the combination of a post having an opening therethrough near the top thereof, an angle iron having one side resting upon the top of the post and the other side adjacent thereto, and a U-bolt receivable by the post opening for anchoring the angle iron to the post.

2. In a protective fence for highways, a plurality of upright supporting posts, a guard rail supported by said posts, said guard rail comprising a series of channel iron members arranged end to end and providing a continuous unbroken surface, each channel iron being substantially U-shape in cross section presenting a relatively broad, smooth, unobstructed web portion, the said channel iron members positioned upon the said posts with their side flanges directly abutting the latter so that the web portions are spaced outwardly beyond the posts, and angle irons secured to the said flanges and to the adjacent surfaces of said posts.

3. In a protective fence for highways, a plurality of supporting posts, a guard rail supported by said posts, angle irons for attaching said rail to said posts, each angle iron having one arm rigidly secured to an edge of said rail, the other arm of the angle iron having a V-cut extending inwardly from its longitudinal edge, portions of said last mentioned arm on each side of said V-cut having openings therein, and bolts passing through said openings to secure said arm to the adjacent post.

In witness whereof, I have hereunto affixed my signature.

JAMES M. DODDRIDGE.