April 11, 1933. J. T. SWEENEY 1,903,725

ROAD GUARD

Filed April 11, 1932

FIG. 1.

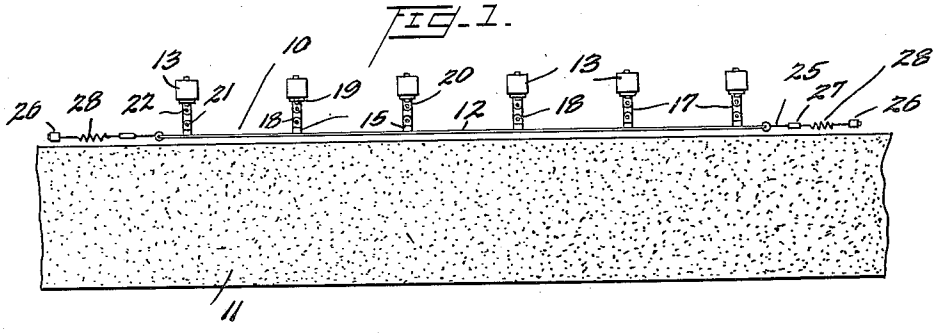


FIG. 2.

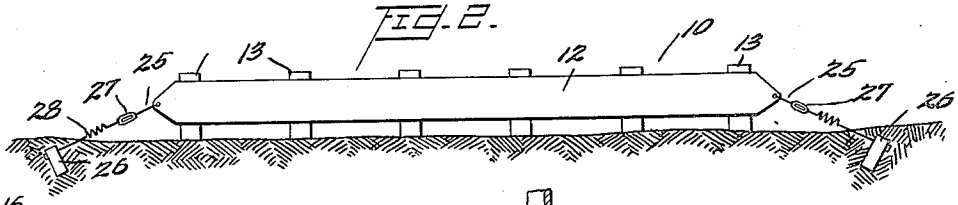


FIG. 3.

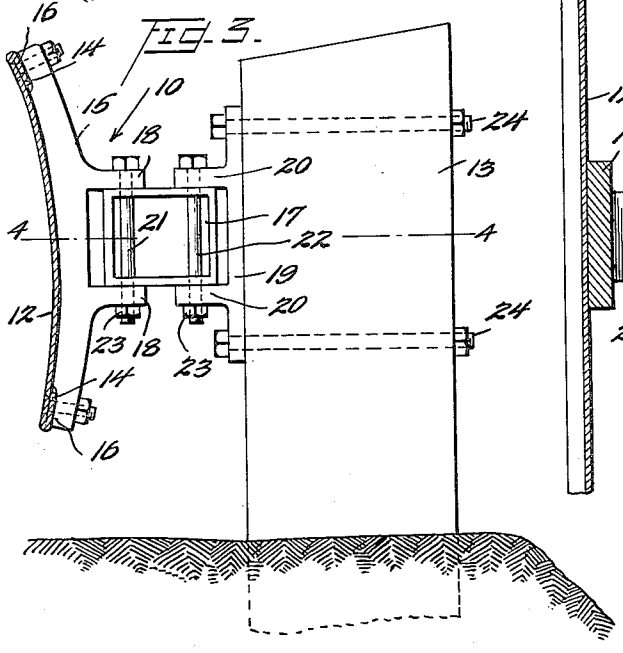


FIG. 4.

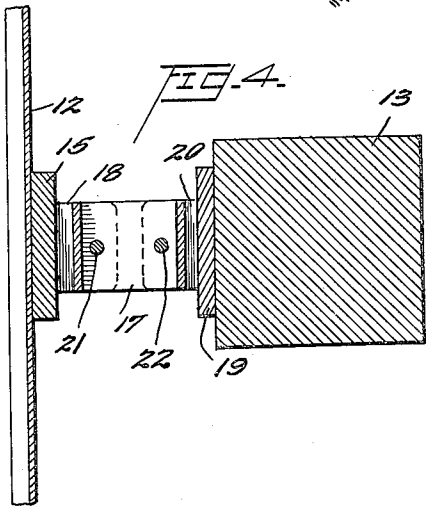
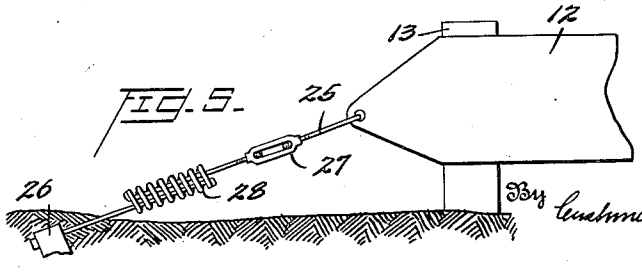


FIG. 5.



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UNITED STATES PATENT OFFICE

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ROAD GUARD

Application filed April 11, 1932. Serial No. 604,570.

This invention relates to improvements in road guards for vehicular highways.

I am aware that it is old to provide road guards with a ribbon of metal presenting either a flat smooth surface or a curved convex surface to the roadway. Such devices, of course, receive the initial impact of a skidding vehicle, but they are not designed to overcome the general tendency of the vehicle to climb over the guard.

The primary object of the present invention is to overcome this objectionable feature by providing a road guard having a guard rail curved to form a concave surface as viewed from the roadside. Such an arrangement furnishes a sort of groove in which the contacting parts of the vehicle will move or skid, thus overcoming the tendency of the vehicle to jump the guard rail and leave the road.

Another object is to so position the guard rail on its supporting posts that the upper edge of the concave surface is in a vertical plane farther from the posts than the vertical plane of the bottom edge of the rail. This further provides against the general tendency of the vehicle to jump over the guard.

A still further object is to provide a road guard having a guard rail so connected to its supporting posts that upon contact of a vehicle with the rail, the latter will be permitted to move longitudinally or lengthwise, thus providing flexibility when the guard rail is struck and also permitting the lateral thrust of the shock to be correctly transmitted to the posts.

A further object is to form the longitudinal edges of the guard rail, so that they will not only be considerably stronger than the usual rail, but also smooth as distinguished from the ordinary plain or raw edges.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the accompanying drawing forming a part of the description and wherein like numerals are employed to designate like parts throughout the several views:

Figure 1 is a plan view showing my invention positioned lengthwise of a highway.

Figure 2 is a front elevation of the road guard.

Figure 3 is a side elevation partly in section.

Figure 4 is a section on line 4—4 of Figure 3, and

Figure 5 is a fragmentary front view showing in detail the means for anchoring and tensioning the ends of the guard rail.

In the accompanying drawing, and referring particularly to Figure 1, the numeral 10 designates generally my improved road guard positioned lengthwise of and at one side of a highway 11. It consists of a guard rail 12 formed of a ribbon of metal curved transversely of itself, so as to present a concave surface to the highway. The guard rail is secured to a plurality of supporting posts 13 a sufficient distance above the surface of the ground line, so as to be in the most advantageous position to receive the contacting portions of a vehicle which has left the highway. In addition to being curved to present a concave surface to the highway, my guard rail is so supported upon the posts 13 that the upper edge of the rail is in a vertical plane farther from the posts than the vertical plane of the bottom edge of the rail. With such an arrangement the guard rail forms a sort of groove in which the contacting parts of the vehicle will move or skid and thereby overcome the general tendency of the vehicle to climb over the road guard. By having the upper edge of the concave surface extending forwardly of the lower edge, a still further means is provided for preventing a skidding vehicle from leaving the highway.

Instead of leaving the longitudinal edges of the guard rail exposed, I preferably turn these edges inwardly and backwardly to provide return bent portions 14 and secure these edges to the rail by means of rivets or welding. I find that in so doing, it not only provides a smoother edge, but also one which is considerably stronger than the ordinary plain or raw edge. If desirable, the edges may be

further strengthened by the insertion of additional metal in the return bent portions.

The numeral 15 denotes one of a plurality of attaching members or lugs to which the guard rail is directly secured. Each of the attaching lugs is, of course, shaped to conform to the curvature of the guard rail and is provided at its outer ends with the cut-away portions constituting shoulders 16 for receiving the return bent portions 14 of the rail. The guard rail may be secured to the attaching lugs by means of suitable bolts or by welding, if so desired.

In order to provide flexibility when the ribbon is struck by the vehicle and to correctly transmit the lateral thrust of the shock to the posts, I provide means for connecting the guard rail to the posts, so that the rail is capable of longitudinal movement when it is struck by a skidding vehicle. This is accomplished by providing connectors 17 and pivotally or hingedly securing the attaching lugs to the connectors and the connectors to the supporting posts. It will be readily apparent that different constructions may be employed for accomplishing this, but in the preferred form of my invention I provide rectangular shaped connectors. Each attaching lug 14 is provided with spaced projections 18 and each post 13 has mounted thereon a suitable bracket 19 having spaced projections 20 corresponding to and adapted to align with the projections 18. Each set of projections is also provided with aligned apertures and the bracket is also provided with corresponding sets of apertures, the arrangement being such that when the bracket is placed in the position shown in Figure 3, suitable pins 21 and 22 respectively may be inserted through the aligned openings, whereby each connector will be pivotally connected to both its corresponding post and attaching lug.

The pins may, of course, be secured in place by any suitable means, such as the nuts 23, and each bracket 20 is secured to its supporting post by means of suitable bolts 24.

In order that the guard rail may be correctly positioned to permit the longitudinal movement and to maintain uniform tension throughout the rail, I provide any suitable anchoring means at each end of the rail. In the present instance, I have provided a rod 25 secured to one end of the guard rail and suitably anchored in the ground by means of an anchorage 26. Interposed at spaced points in the rod between the end of the rail 12 and the anchorage 25, I insert a turn buckle 27 and also spring means 28. As shown, the rod is divided so that each end thereof may be attached to opposite ends of the spring. With this construction adequate tension is always maintained upon the guard rail and adjustments may be made by means of the turn buckle 27.

With a road guard as above described, it will be apparent that any vehicle which may accidentally leave the road will, upon contact with the guard rail, move or slide in the groove formed by the concaved surface of the rail instead of jumping over the rail and causing a serious accident. Furthermore, because of the novel connection between the guard rail and the posts, a certain amount of flexibility is provided when the rail is struck by a vehicle and the correct lateral thrust is transmitted to the posts.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose thereof, and it is intended to cover in the claims any modified forms of structure or use of mechanical equivalents which may be reasonably incurred within their scope.

I claim:

1. In a road guard for highways, a guard rail adapted to extend lengthwise of the highway at one side thereof, and comprising a continuous smooth surfaced ribbon of metal curved transversely of itself throughout its entire width to present a concave surface to the highway.

2. In a road guard for highways, a guard rail adapted to extend lengthwise of the highway at one side thereof, and comprising a continuous smooth surfaced ribbon of metal having its longitudinal edges return bent upon said ribbon and secured thereto, and an attaching member for said ribbon positioned transversely thereof and provided with cut-away portions forming shoulders to receive the return bent edges of said ribbon.

3. In a road guard for highways, a guard rail adapted to extend lengthwise of the highway at one side thereof, a supporting post for said guard rail, means for securing said guard rail to said post including a connecting member pivoted to said guard rail and to said post for permitting longitudinal movement of said guard rail.

4. In a road guard for highways, a guard rail adapted to extend lengthwise of the highway at one side thereof, an attaching member secured to said guard rail, a supporting post for said guard rail, a bracket mounted on said post, and a connecting member pivoted to said attaching member and to said bracket for permitting longitudinal movement of said guard rail.

5. In a road guard for highways, a guard rail adapted to extend lengthwise of the highway at one side thereof, an attaching member secured to said guard rail, a supporting post for said guard rail, a bracket mounted on said post, and a rectangular connecting member pivoted to both said attaching member and bracket and spacing one from the other, whereby upon contact of a

vehicle with the guard rail longitudinal movement of said rail will be permitted.

6. In a road guard for highways, a guard rail adapted to extend lengthwise of the highway at one side thereof, said guard rail presenting to the highway a front concave face curved transversely of the rail, from the top to the bottom thereof and continuous throughout the entire length of the rail.

7. In a road guard for highways, a guard rail adapted to extend lengthwise of the highway at one side thereof, an attaching lug secured to said guard rail and provided with spaced projections, a supporting post for said guard rail, a bracket mounted on said post and provided with spaced projections corresponding to the projections on said attaching lug, a rectangular connecting member having opposed portions received between each set of projections, a pin extending through the bracket projections and one portion of said connecting member and a second pin extending through the projections on the attaching lug and the corresponding portion of said connecting member.

8. In a road guard for highways, a guard rail adapted to extend lengthwise of the highway at one side thereof, and comprising a continuous smooth surfaced ribbon of metal curved transversely of itself to present a concave surface to the highway, the upper extremity of said guard rail being in a vertical plane in advance of the vertical plane of the bottom of said rail.

In testimony whereof I affix my signature.

JAMES T. SWEENEY.