Sept. 21, 1937. J. C. SHEPHERD 2,093,577

HIGHWAY GUARD

Filed Aug. 20, 1934

Fig. 1.

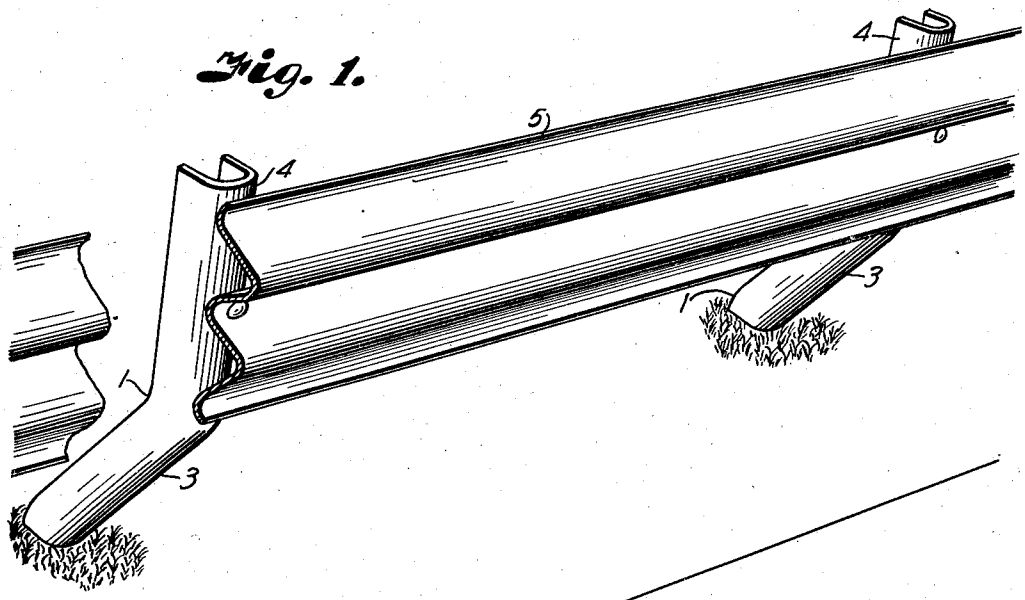
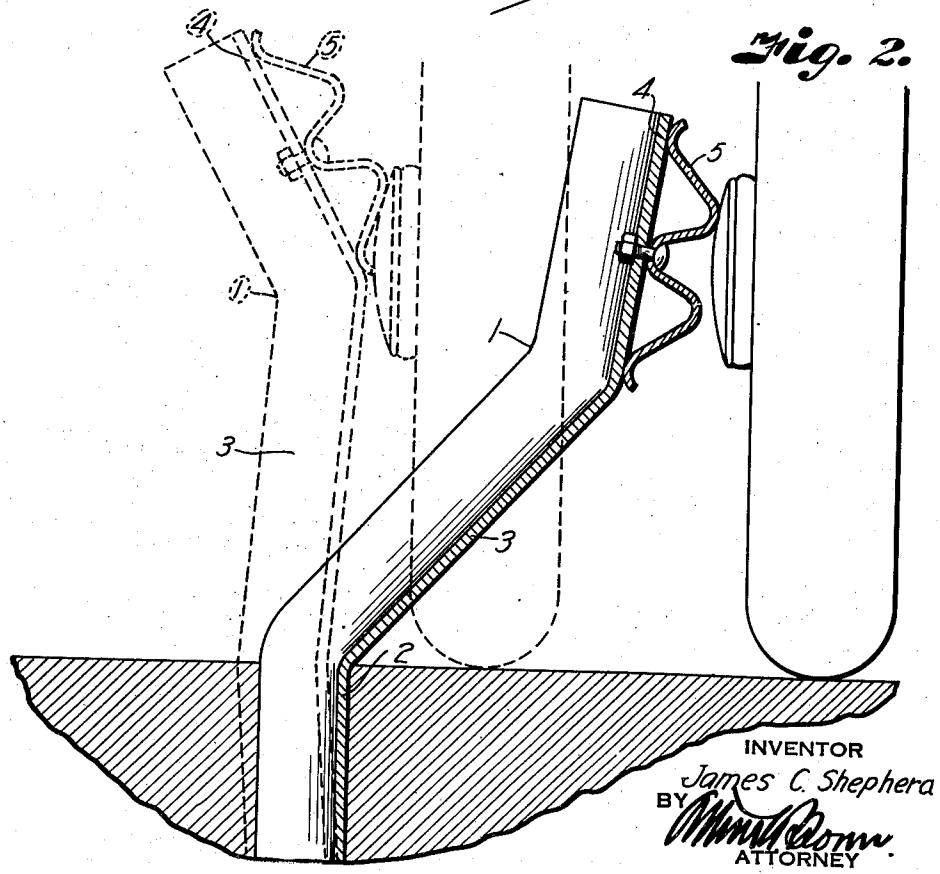


Fig. 2.



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2,093,577

HIGHWAY GUARD

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9 Claims. (Cl. 256—13.1)

My invention relates to highway guards, and more particularly to structures of that character erected at curves and dangerous locations along highways to interrupt or safely deflect travel of motor vehicles that have departed accidentally from the path of traffic along the highway.

Guards of the character stated usually consist of rails or cables mounted on supporting posts set in the ground along the highway, with the rails or cables arranged at about the level of the hubs of ordinary vehicles, so that impact of a vehicle against the rails or cables is as nearly within the plane of center of gravity of the vehicle as possible to avoid overturning of the vehicle in response to the impact of collision. Whether the guards are of flat rail or cable type, and even with those including supplemental means at the post portions for cushioning the thrust of vehicle impact, force of the impact under weight of the vehicle usually displaces the supporting posts in a backward direction to a greater or less extent, leaving the lower portions of the posts extending across the line of travel to which the outside wheels of the vehicle have been directed by the impact, so that when the vehicle reaches the post next in line after the point of impact the outside wheels strike such portion of the post and are damaged by impact therewith.

It is the object of my invention to provide a guard of the general type above described, but with which danger of damage to a vehicle from impact with a rail supporting post is avoided.

In accomplishing this and other objects of the invention I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a highway guard embodying my invention.

Fig. 2 is a transverse vertical section through the guard rail illustrating normal position of a supporting post in full lines and distorted positions of the post resulting from impact of a vehicle with the guard rail in dotted lines.

Referring more in detail to the drawing:

1 designates posts of my improved construction which may be set at properly spaced intervals along a highway to support a guard rail of suitable type and comprising a ground section 2 of ordinary form. At the upper end of the ground section 2 the post is inclined laterally to extend in the direction of the path of traffic along the highway, and at the upper end of the inclined section 3, it is turned upwardly at a slight forward angle to provide a rail carrying section or head 4. The post may be conveniently formed of heavy sheet or structural metal, but the material of which it is composed or its structural details, other than I have described, are immaterial.

Attached to the head sections 4 of adjacent posts and spanning the space therebetween are guard rails 5, preferably of heavy corrugated sheet metal to space the point of contact of a vehicle with the guard from the plane of the outer face of the rail carrying heads 4 and provide transverse resiliency in the rail, as disclosed in my co-pending application filed concurrently herewith.

It is thus apparent that the projecting corrugations provide spaced, parallel, contacting portions 6 and 7 located in a plane inclined so that the upper corrugation normally projects further in the direction of the highway than does the lower corrugation.

Assuming a guard as described to be erected along a highway, should a vehicle accidentally depart from the normal path of traffic and strike the rail with any considerable force, it will be deflected by the rail to a line of travel parallel with the rail, and eventually come to a stop or control of it be regained by the driver without damage to the vehicle or injury to its occupants. Should the force of impact of the vehicle with the rail be sufficient to distort the adjacent supporting posts, the latter will tend to bend backwardly at the joints between the ground and shank sections, or usually the ground in which the posts are set will yield to permit the guard supporting posts to assume backwardly inclined positions such as illustrated in Fig. 2 of the accompanying drawing; in either event, the sections of the posts exposed above the ground being still located back of the rail head so that no part thereof will form an obstruction against which the wheels of the vehicle may impact to overturn the vehicle or damage the wheels.

With the rail heads on the posts inclined as described, the central corrugation in the rail forms a trough by which the hub caps of ordinary motor vehicles will have guided travel to assist in retaining the vehicle in upright position, bending of the posts or backward inclination thereof in their ground mountings varying the angle of the trough, but permitting it to maintain its retaining contact with the hub caps as it rolls slightly thereover.

The inclination of the guard rails shown in Fig. 2 is an important feature of the invention in that such inclination tends to impart a downward thrust to the wheels of the colliding vehicle that

is maintained throughout the yielding movement of the posts, since by the time the rail has reached a perpendicular position, the lower contact portion 7 has passed the horizontal diameter of the wheel and engages thereabove. The corrugations therefore successively engage the wheel throughout the backward yielding movement of the post as shown in Fig. 2 and it is impossible for the wheels to climb over the rails.

Attention is also directed to the fact that yieldability of the posts and their interconnection by the rails permits and effects progressive absorption of the thrust of a collision by a number of posts both to right and left of the point of impact, thereby avoiding the sudden spring back that would be imparted to the band if the posts were rigidly mounted and the entire load placed on two adjacent posts and the portion of the band located therebetween.

What I claim and desire to secure by Letters Patent is:

1. A highway guard including a plurality of posts having ground sections imbedded along a highway, shank sections extending upwardly and laterally from the ground sections in the direction of the highway and having rail head sections extending upwardly and laterally from the shank sections in the direction of the highway, and guard rail members attached to said rail head sections.

2. A highway guard including a plurality of posts having ground sections imbedded along the highway, shank sections inclined upwardly and laterally from the ground sections in the direction of the highway, rail head sections extending upwardly and laterally from the upper ends of the shank sections in the direction of the highway, and guard rail members attached to said rail head sections and having projecting contact faces for imparting a downward force upon the wheels of a vehicle striking said guard rail members.

3. A highway guard including rail members, and supports for the rail members having lower portions embedded in the ground along a highway and upper portions extended laterally in the direction of the highway and normally supporting the rail members in an inclined plane spaced from that of said embedded portions.

4. In a highway guard, a plurality of posts each having a ground section imbedded at the side of a highway, a shank section inclined upwardly from the ground section in the direction of the highway, and a rail head section inclined upwardly from the end of said shank section in the direction of the highway to provide an inclined rail attaching portion offset from said ground section, and a flexible guard rail secured in yielding contact with the attaching portions of adjacent posts.

5. In a highway guard, a plurality of posts having ground sections imbedded along a highway, shank sections inclined upwardly from the ground sections in the direction of the highway, and rail head sections inclined upwardly from the ends of said shank sections in the direction of the highway to provide rail attaching portions offset from said ground sections, and guard rail members secured to and connecting the attaching portions of the respective posts to effect movement of all of said posts incidental to deflecting impact of a vehicle against one of said guard rail members.

6. In a highway guard, a plurality of posts of U-shaped cross section, having ground sections imbedded along a highway, shank sections inclined upwardly from the ground sections in the direction of the highway, and rail head sections extending upwardly from the ends of said shank sections in the direction of the highway to provide rail attaching portions offset from said ground sections, and guard rail members secured in connecting relation with said attaching portions of the respective posts to effect movement of all of said posts incidental to deflecting impact of a vehicle against one of said guard rail members.

7. In a highway guard, a corrugated guard rail having spaced, parallel, contact portions for contact by a part of a vehicle, and means supporting said guard rail with said contact portions in an inclined plane whereby downward thrust is imparted to the contacting part of the vehicle upon successive engagement of said part with said contact portions in response to distortion of said supporting means incidental to the force of impact of the vehicle.

8. In a highway guard, a guard rail having spaced parallel corrugations providing upper and lower contact portions, a plurality of posts having ground sections imbedded along a highway, shank sections inclined upwardly from the ground sections in the direction of the highway, and rail head sections inclined upwardly from the ends of said shank sections in the direction of the highway to provide rail attaching portions offset from said ground sections, and means for securing said guard rail in yielding contact with said attaching portions to support said guard rail in an inclined plane whereby said contact portions are successively engaged by a part of an impacting vehicle in response to movement of the posts under impact of said vehicle.

9. In a highway guard, a guard rail having spaced parallel corrugations providing upper and lower contact portions, a plurality of posts having ground sections imbedded along a highway, rail head sections inclined in the direction of the highway to provide rail attaching portions and shank sections offsetting said rail head sections from the ground sections, and means for securing said guard rail in yielding contact with said attaching portions to support said guard rail in an inclined plane whereby said contact portions are successively engaged by a part of an impacting vehicle upon movement of the posts under impact of said vehicle.

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