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W. W. RUSSELL

1,892,222

HIGHWAY GUARD

Filed Feb. 15, 1932

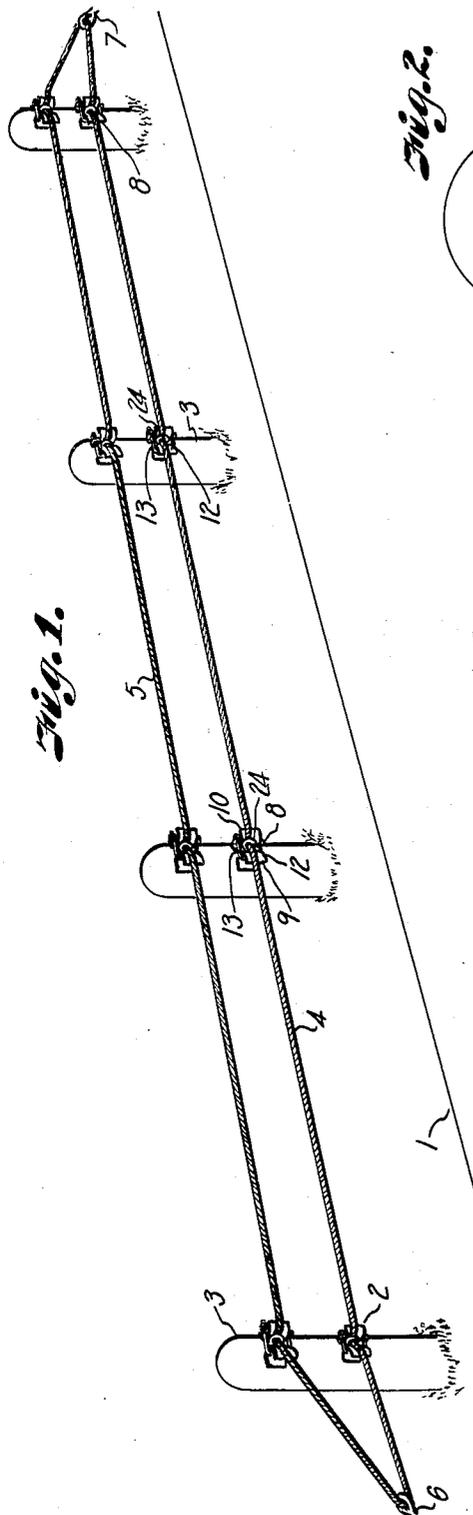


Fig. 1.

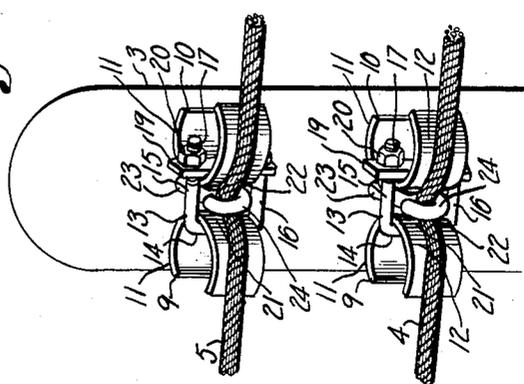


Fig. 2.

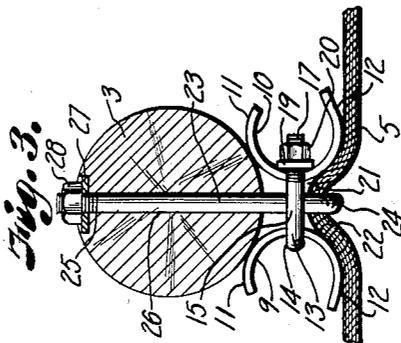


Fig. 3.

Fig. 4.

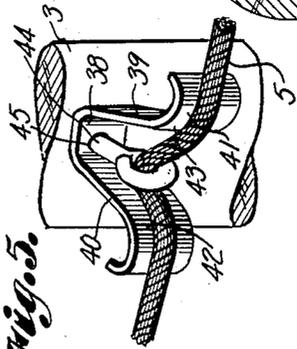
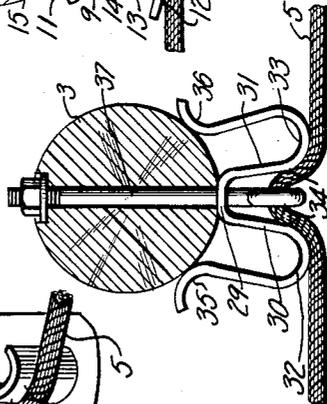


Fig. 5.

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HIGHWAY GUARD

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My invention relates to highway guards and more particularly to those of that character employing wire cables supported on posts located at suitable intervals along a highway, and has for its principal object to provide resilient supports for the cables which will yield under impact of a vehicle and then spring back to return the cables to their normal taut condition, thereby tending to absorb the shock of the impact and to deflect the vehicle back onto the highway.

Another important feature of the invention is to support the wire cables from their posts in such a manner that the shock of collision will be distributed throughout the length of the cables.

It is also an important object of the invention to retain the cables in spaced relation with their supporting posts to prevent a vehicle from directly striking the posts in case of collision, thereby reducing the possibility of broken wheels or serious damage to the vehicle.

Another important feature of the invention is to support the cables in such a manner that they may be individually tensioned at selective points throughout their length.

In accomplishing these and other objects of the invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawing, whereir:—

Fig. 1 is a perspective view of a highway guard constructed in accordance with my invention.

Fig. 2 is an enlarged perspective view of the upper end of one of the cable-supporting posts, illustrating the shock-absorbing brackets for flexibly mounting and tensioning the cables.

Fig. 3 is a horizontal sectional view through the post illustrating the attachment of the brackets thereto.

Fig. 4 is a similar view of a modified form of resilient bracket.

Fig. 5 is a perspective view of a further modified form of the invention.

Referring more in detail to the drawing:

1 designates a highway protected by a guard 2 constructed in accordance with my

invention, and which comprises a plurality of posts 3 located at suitable intervals along the side of a roadway. Supported by the posts is a plurality of parallelly extending wire cables 4—5 having their ends anchored to rods 6—7 anchored to suitable dead men (not shown).

In order to secure and space the cables from the posts, I provide flexible brackets generally designated 8 and which include pairs of substantially semi-circular members 9—10 preferably formed of spring metal and bent into the curvature as best illustrated in Fig. 3, to provide contact portions 11 for tangentially seating against the posts and similar forwardly extending portions 12 for seating the cables.

Each pair of members 9—10 is tied together by a U-bolt 13 having its horizontal bar 14 extending through and engaging the inner side of the member 9 and its leg portions 15—16 overlying the ends of both members, as best illustrated in Fig. 2. Sleeved on the threaded ends 17 of the legs 15—16 and engaging the inner arcuate face of the member 10 is a keeper plate 19 adapted to be retained in clamping engagement therewith by nuts 20 threaded onto the ends of the legs. The members 9—10 are thus retained in desired spaced relation with their free ends extending in opposite directions and in engagement with the sides of the posts. The outer portions 12 of the bracket members form substantially V-shaped seat portions 21 therebetween to accommodate bight portions 22 formed in the cables whereby the cable may be drawn taut and tensioned between the dead men. In order to form and retain the bights in the cables, I provide J-bolts 23 having hooked ends 24 engaging over the cable and having their shanks 25 projected through openings 26 in the posts. The shanks of the bolts are of sufficient length to project entirely through the post to accommodate washers 27 and nuts 28, whereby the bolts may be adjusted to draw the bights in the cable between the spring members 9 and 10.

It is obvious that there may be any number of cables. However, I find that two cables are sufficient to deflect a vehicle back onto the

roadway, the cables being arranged on the posts so that the lower cable engages an automobile wheel below its hub and the upper cable engages the wheel above the hub.

5 In Fig. 4 is illustrated a modified form of resilient bracket. In this form the bracket is substantially in the shape of a W, and comprises a central flat portion 29 for engaging against the post having forwardly projecting
10 arms 30—31 terminating in semi-circular curves 32—33 to form a seat 34 for the bight of the cable. The ends of the curved portions extend rearwardly toward the post and terminate in curved foot portions 35—36 for
15 slidably engaging the sides of the post under force of an impact, and for stabilizing the bracket member in horizontal position relative to the cable. The bight in the cable is retained in seated relation with the bracket
20 member by I or J-bolts 37 similar to the bolt 23 previously described.

In Fig. 5 is illustrated the further modified form in which the brackets assume a substantially V-shape having a flat portion 38
25 engaging against the post and provided with forwardly projecting arms 39—40 terminating in forwardly and rearwardly curved ends 41—42 to form the seat 43 for the bight of the cable similar to the seats illustrated in
30 Figs. 3 and 4. In this form the bight of the cable is also retained in seated relation with the bracket by I-bolts 44 extending through an opening 45 in the portion 38 and through an opening in the post similar to the bolts
35 previously described.

To install a guard rail as illustrated in Fig. 1, the posts 3 are located at suitable intervals along the roadway and the cables 4—5 are
40 strung along the posts and anchored at their ends to the rods 6—7. The pairs of brackets comprising the resilient members 9—10, connected by U-bolts 13, are anchored to the posts by the J-bolts 23, the hooked ends thereof being hooked over the cable at points in
45 alignment with the posts while their shanks are projected through the openings 26. The nuts 28 are then threaded on the projecting ends of the bolts to draw the cables between the members 9 and 10, sufficient tension being
50 applied to the cables to draw them taut and provide the proper tension to resist force of collision. The tension may be taken up at all the brackets on the respective posts, whereby the cables may be uniformly tensioned
55 throughout their length.

The modified structures shown in Figs. 4 and 5 may be similarly installed in the same manner as the preferred form.

60 Should a vehicle travelling along the highway leave the road, the wheels thereof will strike the cables 4 and 5. The force of the impact will cause the members 9 and 10 to contract and then expand to their normal curvature to restore the tension in the cables
65 4 and 5, absorbing the shock and deflecting

the vehicle back onto the highway. Due to the flexible support throughout the length of the cables the shock will be absorbed proportionately by all of the brackets supporting the cables. The shock, therefore, is not
70 merely absorbed at the point of impact but is distributed the entire length of the guard.

Should the cables slacken from any cause, the slack may be readily taken up and the proper tension restored by tightening the
75 nuts on the bolts 23 to draw the bights deeper within the seat portions 9 and 10.

Attention is also directed to the fact that the brackets support the cables away from the posts so that it is impossible for the wheel
80 or hub cap to catch on the posts; also due to the protective position of the retaining bolts, it is impossible for any part of the vehicle to engage therewith, because it must first strike the flexible arms of the brackets,
85 which will divert the vehicle before it can contact with the bolts or any solid part of the posts.

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

1. A highway guard including a support, a cable carried by the support, and resilient means supporting the cable in spaced relation with the support, including adjustable
90 means for tensioning the cable.

2. A highway guard including a support, a cable carried by the support, spaced resilient members engaging the support, and means on the support for drawing a bight in the cable between said members to tension
95 the cable.

3. In a highway guard including a support, a cable and means for resiliently securing the cable to the support comprising a pair of spaced curved members arranged to
100 space the cable from the support, means for tying said members in spaced relation with each other, and fastening means on the support engaging the cable to draw a bight between said members to tension the cable.

4. A highway guard comprising spaced posts, a cable associated with said posts, substantially semi-circular resilient members having end portions tangentially engaging the posts and end portions engaging against
105 the cable, U-bolts securing the members together, and J-bolts extending through the posts and engaging the cables at points between said resilient members to tension the cables.

5. In a highway guard including a support, a cable and means for resiliently securing the cable to the support comprising a pair of spaced curved members arranged to space the cable from the support, means
110 for tying said members in spaced relation with each other to form a cable seat, and fastening means on the support engaging the cable to draw the cable into said seat.

6. A highway guard comprising spaced
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posts, a cable supported by said posts, substantially semi-circular resilient members having end portions tangentially engaging the posts and end portions engaging against the cable, means securing the members together, and tensioning means extending through the posts and engaging the cable at points between said members to tension the cable.

7. A highway guard comprising spaced posts, cables associated with said posts, a pair of substantially semi-circular resilient members for each post and having end portions tangentially engaging the posts and end portions engaging against the cable, U-bolts securing the members together to form a seat therebetween, and means extending through the posts and engaging the cable to draw the cable into said seat to tension the cable.

8. A highway guard including spaced supports, a cable carried by said supports, resilient means for spacing the cable from the supports, and means for drawing the cable over said resilient means toward the supports to tension the cable and to anchor the cable to the supports.

In testimony whereof I affix my signature.

WALLACE W. RUSSELL.

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