April 19, 1927. 1,625,716

C. EDWARDS

PROTECTOR FENCE FOR HIGHWAYS

Filed Dec. 29, 1926 2 Sheets-Sheet 1

Fig. 1.

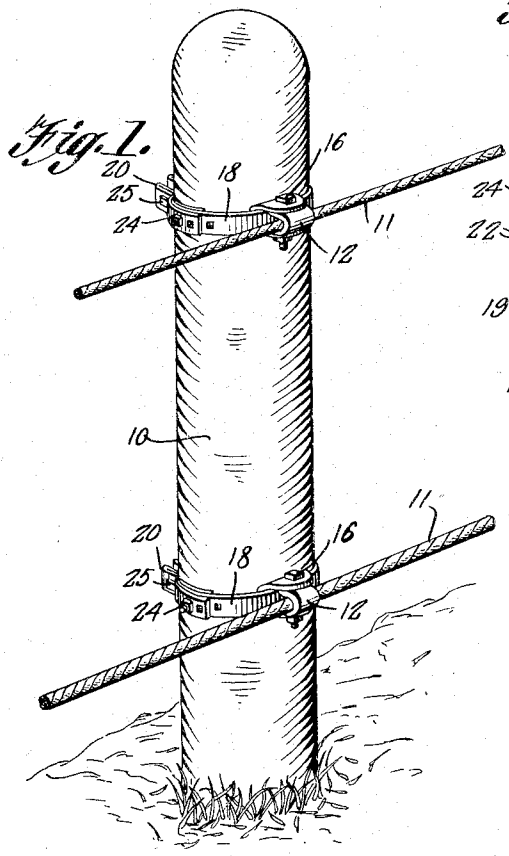
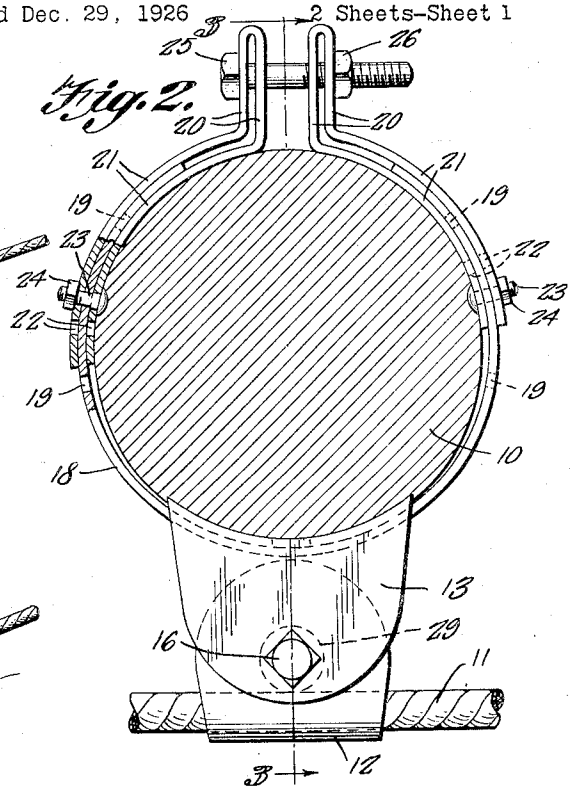


Fig. 2.



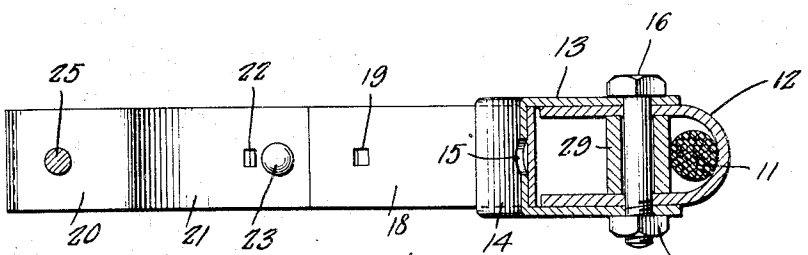


Fig. 3.

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Fig. 4.

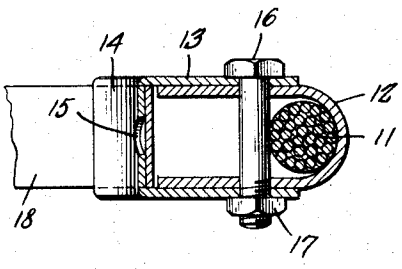
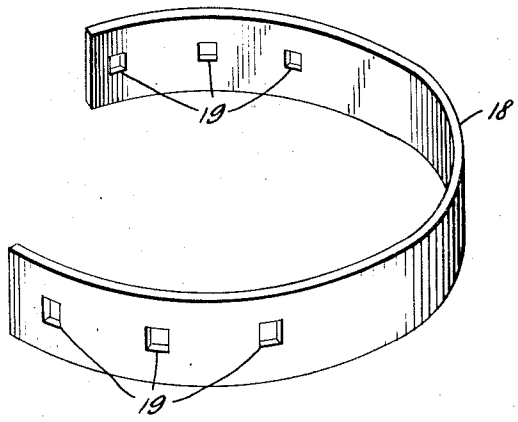


Fig. 5.



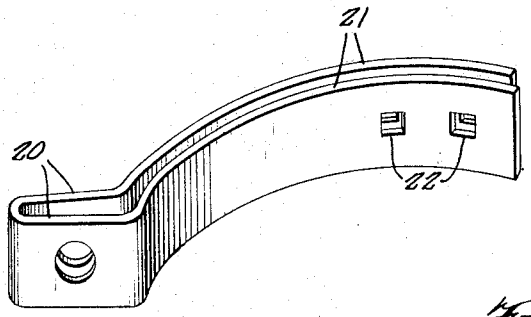


Fig. 6.

Fig. 8.

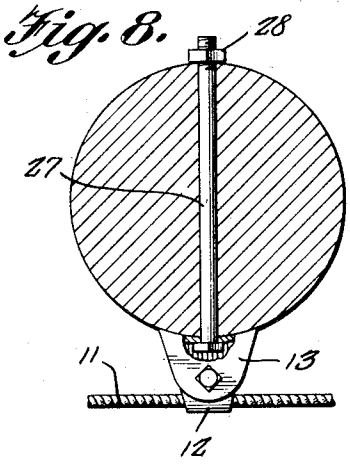
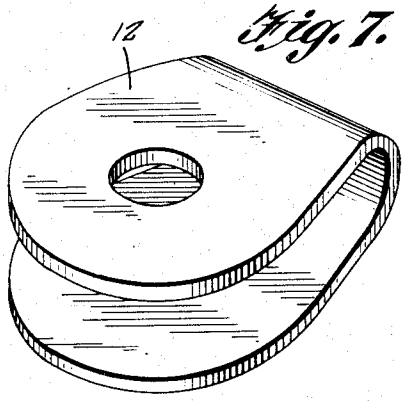


Fig. 7.



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Patented Apr. 19, 1927. 1,625,716

UNITED STATES PATENT OFFICE.

CHARLES EDWARDS, OF LANSFORD, PENNSYLVANIA.

PROTECTOR FENCE FOR HIGHWAYS.

Application filed December 29, 1926. Serial No. 157,838.

As in my U. S. Letters Patent No. 1,601,612, granted me on September 28, 1926, my present invention is directed to guide and clamping means for protector ropes or cables, for the sides of highways, and my present invention may be considered an improvement upon my said patent and upon other devices of a like nature.

As is well known protective means for automobiles and other vehicles must be erected along highways that have gulleys, ditches or other declivities at the sides thereof to protect the lives of motorists and pedestrians. Wooden structures for this purpose do not offer adequate protection for the reason that the same are non-yieldable, and a machine forcibly contacting therewith will not only itself be smashed but will entirely destroy the fence or barrier and plunge into the declivity with not only serious damages to the machine but with fatal results to the occupants thereof. To provide a yieldable fence or barrier for this purpose it has been found, by practical experiments that strong ropes or wire cables connected to wooden posts erected along the sides of a highway are best suited for the purpose, as the ropes or cables will yield when contacted and by virtue of such yielding will obviate the breakage thereof and will serve to redirect an automobile, which has been rendered temporarily uncontrollable again onto the highway. Such constructions, however, in the main do not provide proper guides for the ropes or cables nor means for adequately attaching said guides to the posts. These guides are non-yieldable so that a force of contact thereagainst will be imparted directly to the supporting posts with the liability of injuring both the cables and the posts. Again the attaching means is generally in the nature of long eye bolts which necessitate the drilling of holes through the posts and the screwing of nuts on the bolts, the eyes serving as guides for the cable. Quite frequently the wooden posts split when such holes are bored therethrough and as the posts are exposed to the elements the same naturally absorb moisture and after the posts are permitted to dry by the warmth of the sun they are apt to split by lateral expansion, especially in a line with the openings therein. In such instances it is necessary to remove the defective post and it is practically impossible to obtain sufficient slack in the cables to permit of the reinsertion of the bolt having the fixed guides thereon through openings in a new post. A suitable machine is connected to the ends of the cables at the fence or barrier, the machine being driven to impart a longitudinal strain upon the cables whereby to pull all of the posts of the fence or barrier so that an entirely new fence or barrier must be erected.

My present invention successfully overcomes the above mentioned contingencies and provides an extremely simple, cheaply constructed and thoroughly efficient, pivotally supported guide means for the cables of a protector fence or barrier for highways, together with a means for effectively attaching the same on a supporting post in a manner which will not inflict injury to the latter, and also wherein the pivot for the guide means is removable so that the same can be readily detached without removing the remainder of the construction from the post in the event of breakage or damage to any one of the cables, and whereby such cable can be easily and quickly replaced by a new cable.

A still further object is the provision of a novel guide means for cables for this purpose which will sustain the cable outwardly with respect to the post on which the said means is supported, the said guide being pivotally associated with the support and having means whereby the cross sectional diameter of the pivot may be increased or reduced so that cables of different cross sectional diameters may be received through the guide and find a direct bearing between the guide and the pivot therefor.

A still further object is the provision of a means for this purpose which can be successfully applied to posts or like uprights of different cross sectional diameters, and which will be sustained on said posts in a manner to positively grip the post and being held thereon against movement in any direction, and which also serves to materially reinforce and strengthen such posts.

To the attainment of the above broadly stated objects and many others which will present themselves as the nature of the invention is better understood, the improvement also resides in certain other novel features of construction, combination and operative association of elements, a satisfactory

embodiment of which is disclosed by the accompanying drawings.

In the drawings.

Figure 1 is a perspective view of the improvement in applied position.

Figure 2 is a horizontal view of the improvement with parts broken away and parts in section.

Figure 3 is a sectional view on the line 3—3 of Figure 2.

Figure 4 is a detail sectional view approximately on the line 4—4 of Figure 2.

Figure 5 is a perspective view of the split band which may be employed.

Figure 6 is a similar view of one of the jaw members.

Figure 7 is a similar view of the guide member.

Figure 8 is a horizontal sectional view through one of the posts to illustrate a modified means by which the improvement may be supported on said post.

In erecting a protector fence for the sides of highways or the like, comparatively thick posts are planted at spaced intervals. The posts are preferably of wood because of cheapness, resiliency and strength under tensional strain. These series of posts have attached to their inner faces any desired number of longitudinally arranged ropes or cables, the latter being preferably but not absolutely necessarily of woven wire. The ends of the cables are suitably connected and are anchored in the ground, each cable, of course, being of a length equaling that of the fence.

In the drawings I have not deemed it necessary to illustrate a complete protector fence but in certain figures thereof I have shown one of the posts, which is indicated by the numeral 10. On the inner face of the post 10, at a suitable distance from the rounded top and from the bottom thereof I arrange the guides for the ropes or cables 11. In the illustrative embodiment of my improvement, each guide is in the nature of a cross sectional U-shaped metal member 12 that has its inwardly directed parallel arms received between the outwardly directed parallel arms of a yoke member 13. The inner or connecting element for the arms of the yoke 13, is concaved and rounded outwardly from its ends to its center, and this connecting element is indicated by the numeral 14. The inner member 14 of the yoke is centrally provided with an opening 15. Passing through the arms of the yoke and the arms of the guide there is a pivot 16. The pivot is preferably in the nature of a bolt that has its outer end threaded for engagement with a nut 17 and the cords or cables 11 are threaded between the outer rounded portions of the guides 12 and the pivot bolts 16. Suitable means, hereinafter to be described, support the yoke and the guide on the post, and this means partly embeds the sharpened corners of the concaved end 14 of the yoke in the post, so that the improvement is effectively sustained from lateral or circumferential as well as from vertical movement on the post.

By reference to the drawings it will be seen that the pivot 16 passes through the arms of the yoke, adjacent to the outer end of said yoke, so that the rope or cable 11 is arranged a considerable distance away from the post 10. Also the pivot 16 swingably associates the guide with the yoke. Both of these are very important features in this type of invention for the reason that should the rope contact directly with the post, wear between these parts would result which would materially weaken the rope or cable and likewise the rope would wear into and weaken the post. By having the guide pivotally supported the same will yield with the rope when the latter is subjected to an impact of force so that a direct strain upon the rope is not imparted thereto by the guide. The importance of providing the construction with the removable pivot 16 is of the highest importance, as by such arrangement a broken or worn strand of rope or cable may be easily and quickly removed and a new cable easily and quickly substituted in lieu thereof, it being merely necessary to detach the pivot and remove the guide from the yoke, without necessitating any further interference with the yoke and the means that hold said yoke on the post.

The preferred means for securing the yoke on the post comprises a split metal band 18 that has one end passed through the yoke and which contacts the inner rounded wall 14 of the said yoke. The ends of the split band are provided with a centrally arranged series of openings 19. The number of these openings is not important except for the time and labor involved in the drilling thereof and likewise incident to the fact that a great number of such openings might tend to weaken the band. Therefore in the showing of the drawings I have illustrated only three spaced openings, adjacent each end of the band.

The clamping means for the split band 18 comprises two similarly constructed metal members. These members may be properly termed jaws, each being formed from a single strip of metal that is centrally bent upon itself to form spaced parallel straight parts 20. The parts or arms 20 have their inner ends bent to provide arcuate or segmental extensions 21—21, respectively. The curved arms of the jaws or clamping members receive therebetween the outer ends of the split band 18. The curved arms 21 are provided with a pair of aligning spaced openings 22, and there is passed through these openings and one of the openings 19

in each end of the band 18 a bolt member 23. The outer end of each of these bolts is engaged by a nut 24 which effectively clamps the jaws on the band. By providing the arms 21 with the closely related openings 22 it will be apparent that a nice adjustment may be obtained between the split band and the jaw members so that these elements as a whole may be quickly and accurately adjusted with respect to the post on which the device is arranged.

The outwardly extending spaced ends 20 of the jaws or clamping members have aligning openings therethrough for the reception of the headed shank of a bolt 25 and this bolt is engaged by a nut 26 which contacts with the outer element 20 on one of the clamping jaws. It should here be stated that the clamping jaws as well as the split ring embody a natural resiliency so that the curved arms 21 of the said clamping jaws will spread a sufficient distance so as to permit the insertion of the ends of a split band therebetween and by screwing the nut 26 home on the bolt 25, the spaced end elements 20 of the said clamping jaws will be compressed toward each other and will exert a like compression between the curved arms 21 of the said clamping jaws, with the result that these jaws will engage with the ends of the split band 20 with sufficient friction to prevent any free movement of the band with respect to the jaws. By reference to Figure 2 of the drawings it will be noted that when the bolt 26 is screwed home the inner curved arms of the clamping jaws, the heads of the bolts 22 and the rounded end 14 of the yoke will be partly embedded in the post 10 so that these parts of the improvement will be effectively held from movement in any direction.

As illustrated by Figure 8 of the drawings, a comparatively long bolt 27 may pass through the opening 15 in the yoke and through a drilled opening in the post 10. This bolt has its outer end engaged by a nut 28. If desired, both the nuts 26 and 28 may be contacted by lock nuts, or other means may be employed for holding the nuts from free turning on the bolts, although in the preferred embodiment of the improvement, the pressure exerted between the spaced ends 20 of the clamping jaws between the head of the bolt 25 and the nut 26 has been found effective in preventing either the nut or bolt from turning, while in Figure 8 no strain is directed on the bolt 27, so that such locking means are not an absolute requirement. The bolt 27 is only employed in cases of emergency, that is, when the reinforcing clamps are not readily accessible, as it is not desired to bore holes through the post for the bolt 27. These holes, as previously inferred weaken the post and cause the same to readily split, and thereby impair and render defective the entire protective fence.

A certain amount of slack is desired in protector ropes or cables for the purpose herein described, and also, as previously stated, any lateral strain to which the ropes or cables are subjected will permit of the guides yielding therewith.

Protector cables of different diameters may be employed. A cable of a determined cross sectional diameter may rest between the end of the yoke and the pivot 16, as previously set forth, but when cables of a less diameter are employed, roller bearings 29 are arranged on the pivots between the arms of the guides, as clearly disclosed in Figure 3 of the drawings.

It is to be noted that my improvement is entirely constructed of metal but it should be stated that the metal members are treated to provide the same with protective facings that will prevent the same from rusting or deteriorating under weather conditions.

The simplicity of my construction and the advantages thereof will, it is thought, be understood and appreciated by those skilled in the art to which this invention relates when the foregoing description has been carefully read in connection with the accompanying drawings, it, of course, being understood, however, that I am not to be restricted to the precise details of construction herein set forth and am entitled to such changes and modifications therefrom as fairly fall within the scope of what I claim.

Having described the invention, I claim:—

1. In a rope fence protector for highways, the combination with posts, ropes for said posts, of yokes contacting with and removably secured to the posts, a cross sectional U-shaped rope guide having its arms received in the yoke and a removable pivot holding the guide in the yoke and permitting the rounded end of the guide extending through the yoke.

2. In a rope fence protector for highways, the combination with wooden posts and ropes arranged along the faces of the posts, of yokes, each having their inner ends shaped to conform to the outer faces of the posts and arranged thereagainst, removable and adjustable means securing the yokes on the posts, a cross sectional U-shaped rope guide having its arms received in the yoke and a removable pivot arranged a distance away from the said end of the yoke and passing through the arms of the guide and providing, with the outer rounded portion of the guide, contact elements for the rope.

In testimony whereof I affix my signature.

CHARLES EDWARDS.