Oct. 17, 1933. W. F. SCHULZ 1,930,985

HIGHWAY GUARD

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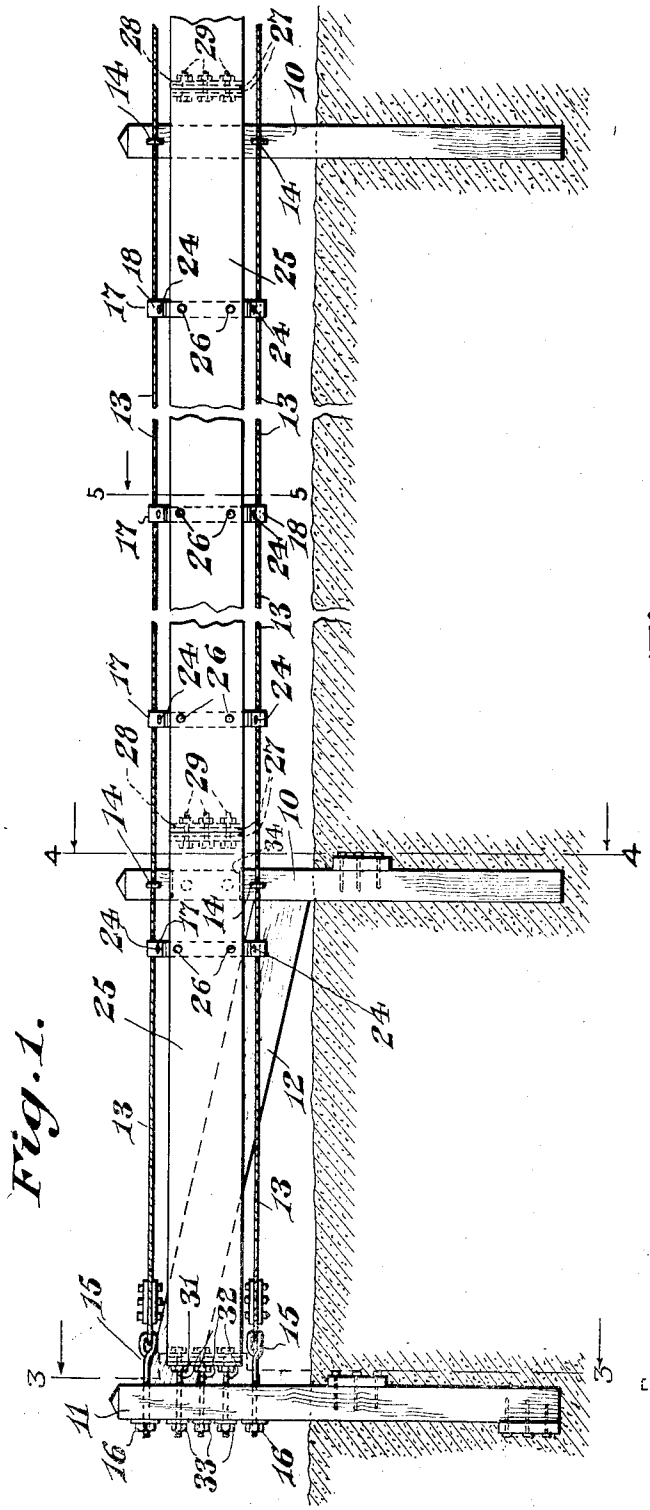


Fig. 1.

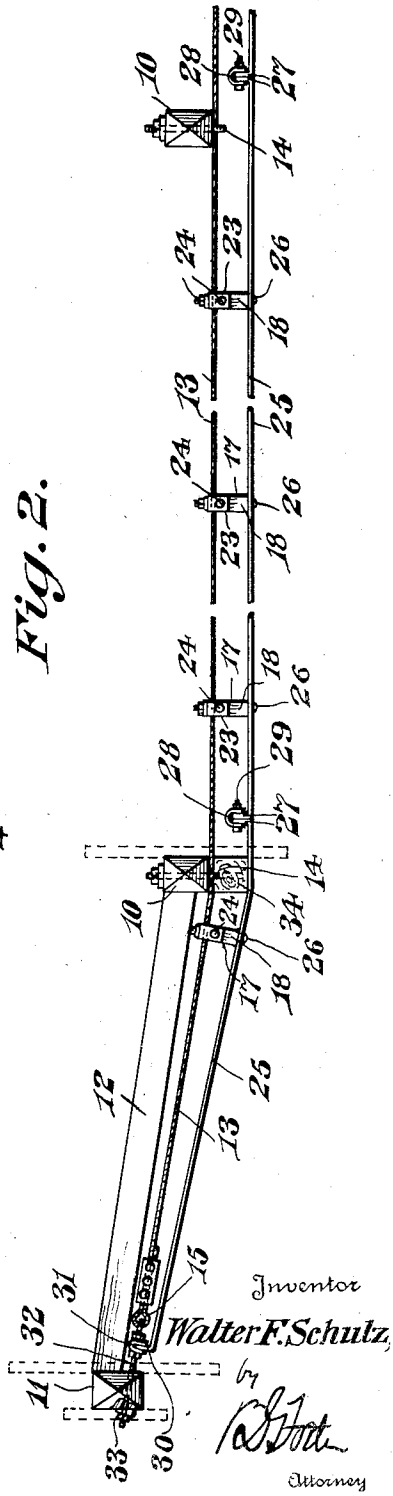


Fig. 2.

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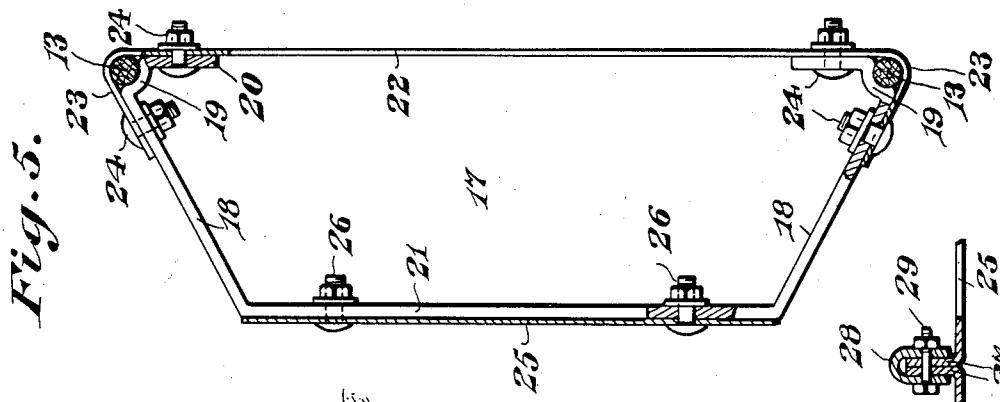


Fig. 5.

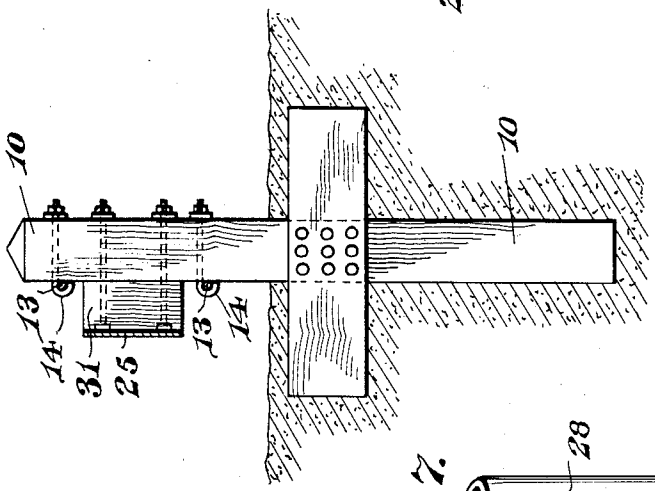


Fig. 4.

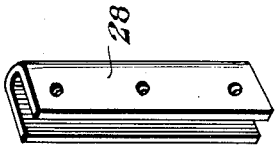


Fig. 7.

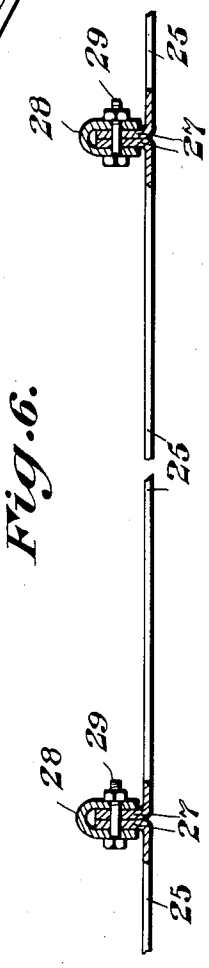


Fig. 6.

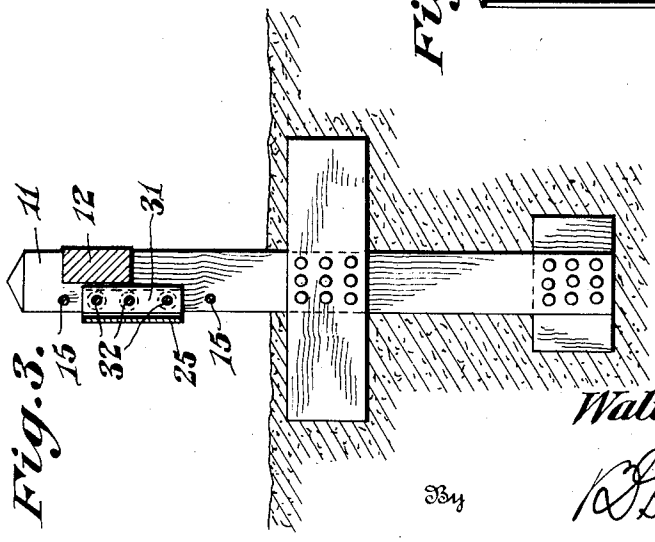


Fig. 3.

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Fig. 9.

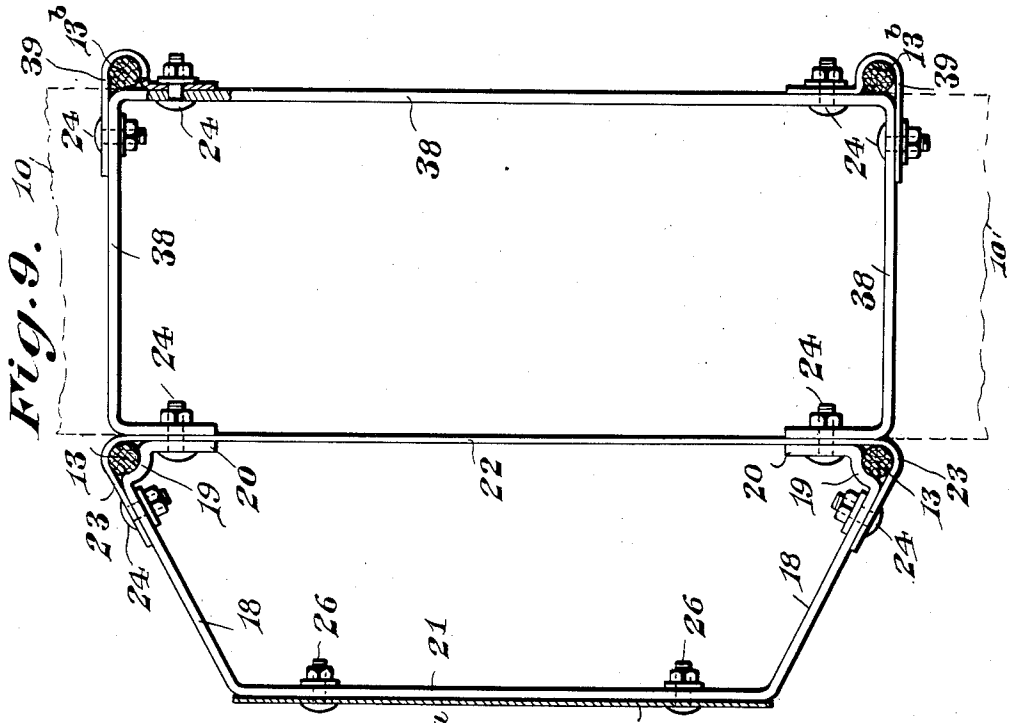
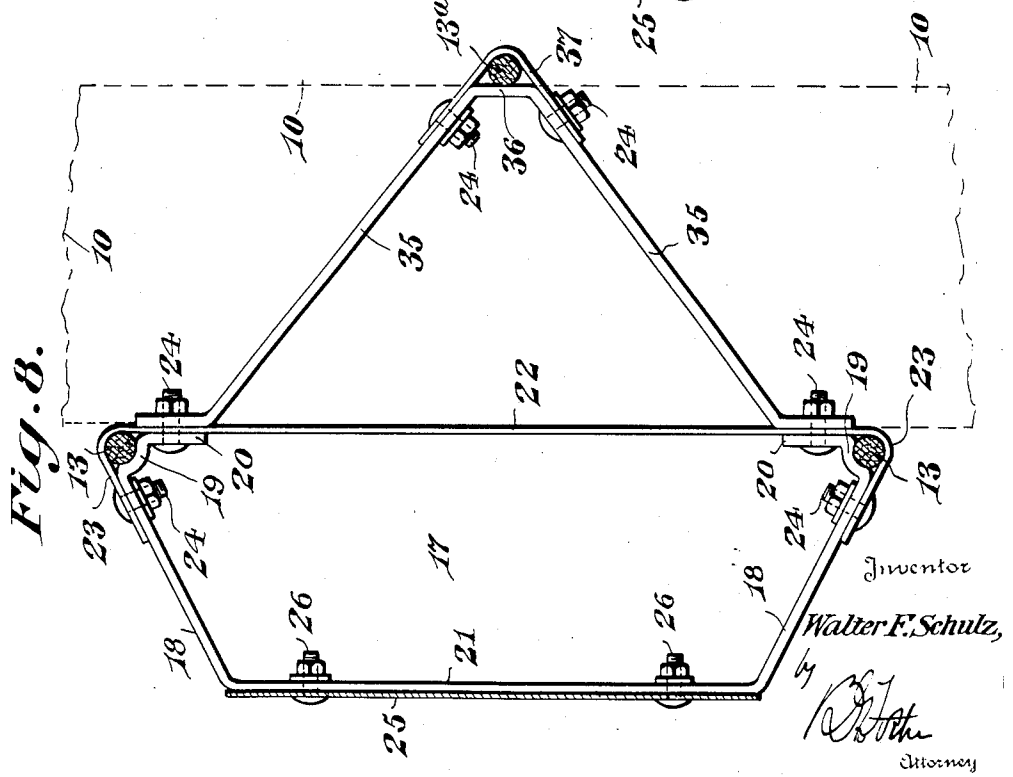


Fig. 8.



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UNITED STATES PATENT OFFICE

1,930,985

HIGHWAY GUARD

Walter F. Schulz, Youngstown, Ohio, assignor to Truscon Steel Company, Youngstown, Ohio, a corporation of Michigan

Application May 5, 1932. Serial No. 609,477

17 Claims. (Cl. 256—13.1)

In the development of guards for highways, the requirement of great strength to resist the impact of vehicles, coupled with a certain amount of resilience in the structure is recognized. It has been the custom to provide for this resiliency on and at the supporting posts.

The object of the present invention is to provide a structure that is relatively inexpensive and can be easily installed, and which will be of great strength to resist the impacts that may be brought upon it, while having a resiliency throughout its extent and not requiring the utilization of springs or the like at the supporting posts.

A preferred embodiment of the invention is shown in the accompanying drawings, wherein:

Figure 1 is a side elevation of a portion of a guard sufficient to show the general structure thereof.

Figure 2 is a top plan view of the same.

Figures 3, 4 and 5 are respectively cross sectional views on the lines 3—3, 4—4 and 5—5 of Figure 1.

Figure 6 is a detail horizontal sectional view through the shield member, illustrating a form of coupling that may be employed between the plates thereof.

Figure 7 is a perspective view of a coupling clip.

Figure 8 is a vertical cross sectional view of a modified form of construction by which greater strength is obtained.

Figure 9 is a cross sectional view of another modification, providing even greater strength than the structure of Figure 8.

In the embodiment disclosed, a plurality of supporting posts 10 are employed placed at any desirable distance apart. At the ends of the set of posts is shown an anchor post 11, which it will be obvious, is duplicated at the other end of the set. A brace 12 preferably extends from the top of the anchor post 11 to the next post 10.

Extending between and mounted on the post 10 are carrier cables 13 that may be bolted or otherwise fastened to the posts 10, as shown at 14. These cables are made taut by tension bolts 15 connected to their ends and adjustably extending through the anchor post 11, being held by adjusting nuts 16.

The cables 13 carry spaced brackets, generally designated 17. Each bracket is provided with convergent forwardly extending arms 18 formed at their rear ends with seats 19 that receive the cables 13, and terminating in ears 20. The front ends of the arms are connected by integral uprights 21. The rear ends of the arms are connected by tie bars 22 which are bent around the cables 13 to form retaining clips 23 and these clips are preferably bolted on opposite sides of the seats 19 as shown at 24. These brackets, it will be observed, are located on opposite sides of and preferably spaced from the supporting posts 10.

Secured to the front faces of the uprights 21 of the brackets 17 is a vehicle-engaging shield member preferably formed of suitable plates 25 secured by bolts 26 or other suitable fasteners to the uprights 21. The plates, which may be of commercial length, are secured end to end in any suitable manner. As shown the ends 27 of said plates are turned rearwardly and abutted and are embraced by clip bars 28. Bolts 29 pass through said clip bars and terminals 27 and thus provide an effective joint or connection between the plates. The guard strip thus produced is anchored at its ends, preferably by having each end rearwardly turned, as illustrated at 30, and engaged in a clip plate 31 through which pass tension bolts 32 that extend through the anchor post 11, and are held by nuts 33. It will be observed that with this structure the cables 13 and shield can be individually placed under tension.

With this structure, it will be noted that the shield strip 25 which has individual resilience, is mounted at spaced points on the flexible cables 13, and that the mounting brackets are at places other than directly in front of the posts. A yielding structure is therefore provided which, however, has great strength to resist the impact of vehicles that may engage the same, and as the shield plate that is engaged by such vehicle is held well in advance of the posts and is spaced therefrom, the posts do not create obstacles or abutments. In this connection it is to be noted that in the structure shown the end portion is angled away from the main body of the structure and the post next to the anchor post may have a bearing block as 34 between it and the strip 25. This, however, is merely to provide a divergent end portion usual in structures of the character, to properly carry the strip to a straight line position.

Where greater strength of resistance is required additional cables may be employed. Thus as shown in Figure 8, a third cable 13*a* is provided which is preferably located on and secured to the rear side of the posts 10 and is secured to the rear sides of the brackets 17 by supplemental brackets 35 of generally triangular form which are secured by the clip bolts 24, the rear portions

of the supplemental brackets having seats 36 against which the cable 13*a* rests and said cable being held in place by retainers 37.

In Figure 9 four carrier cables are employed, the supplemental cables here being designated 13*b*. In this structure the supplemental bracket is of right angular formation and is designated 38, having at its corners clips 39 that embrace these supplemental cables 13*b*. The forwardly extending arms of these brackets are secured by the bolts 24 to the main brackets 17 as will be obvious.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim, is:

1. In a highway guard, the combination with supporting means, of an elongated flexible carrier member extending longitudinally along the highway and mounted on the supporting means, a vehicle engaging shield located in advance of the carrier member, and brackets connecting the shield and carrier member at spaced points.

2. In a highway guard, the combination with spaced supports, of a flexible carrier member connecting and mounted on the supports, a vehicle-engaging shield located in advance of the carrier member, and brackets connecting the shield to the carrier member at spaced points.

3. In a highway guard, the combination with a carrier cable, of means for supporting the same at spaced points, a vehicle-engaging shield located in advance of the cable, and brackets connecting the cable and shield and holding the shield in spaced relation to the cable.

4. In a highway guard, the combination with spaced posts, of a cable mounted on the posts, and a shield mounted on the cable and spaced from the same and from the posts.

5. In a highway guard, the combination with spaced posts, of a flexible cable mounted on the posts, a flexible shield plate in advance of the cable and posts, and brackets connecting the plate and cable at spaced points.

6. In a highway guard, the combination with spaced posts, of a flexible cable mounted on the posts, a flexible shield plate in advance of the cable and posts, and brackets interposed between and connecting the plate and cable at spaced points and out of line with the posts.

7. In a highway guard the combination with spaced supporting posts, of a plurality of flexible cables mounted on the posts, forwardly extending brackets mounted on the cables between the posts, and a vehicle-engaging shield mounted on the brackets.

8. In a highway guard, the combination with spaced supporting posts, of a plurality of flexible cables mounted on the posts, forwardly extending brackets mounted on the cables between the posts, and a flexible vehicle engaging shield plate disposed longitudinally of the cables in advance of the same and of the posts and being mounted on the brackets.

9. In a highway guard, the combination with spaced supporting posts, of a plurality of flexible cables mounted on the posts, brackets connecting the cables and having portions extending in advance of the same, and vehicle-engaging means mounted on the advance portions of the brackets.

10. In a highway guard, the combination with spaced supporting posts, of a plurality of flexible cables mounted on the posts, brackets, each having a tie element connecting the cables, forwardly extending arms and an upright connecting the arms, and a vehicle-engaging shield mounted on the uprights of the brackets and located in advance of the cables and posts.

11. In a highway guard, the combination with spaced supporting posts, of a carrier cable extending between and located behind the posts, brackets secured to the cable between the posts and extending in advance of the same, and a vehicle-engaging shield mounted on the brackets and being located in advance of the posts.

12. In a highway guard, the combination with spaced supporting posts, of a plurality of cables extending between and located on opposite sides of the posts, spaced supports carried by the cables, and a vehicle-engaging shield mounted on the supports.

13. In a highway guard the combination with spaced supporting posts, of a plurality of cables extending between and secured to the front sides of the posts, other cables extending along the rear sides of the posts, brackets connecting and mounted on the cables and extending between the posts in advance of the same, and a vehicle-engaging shield plate mounted on the brackets and disposed in advance of the posts.

14. In a highway guard, the combination with spaced supports, of a continuous flexible carrier member that extends alongside the highway and is secured to a plurality of supports, a continuous flexible shield member extending longitudinally along the carrier member in advance of and spaced from the same, and means connecting the shield member to the carrier member in its spaced relation thereto.

15. In a highway guard, the combination with spaced supports, of a flexible carrier secured directly to the supports, a shield extending longitudinally along the carrier in advance of the same and spaced therefrom in front of the supports, and means connecting the shield to the carrier between the supports and holding the shield in spaced relation to the carrier and supports in front of said supports.

16. In a highway guard, the combination with a continuous flexible carrier member that extends alongside the highway, of a continuous flexible shield member extending longitudinally along the carrier member in advance of and spaced from the same, and means connecting the shield member to the carrier member and spacing the two apart.

17. In a highway guard, the combination with a continuous flexible carrier member that extends alongside the highway, of spaced supports therefor, means for securing the carrier member to the supports, a flexible shield band extending along the carrier in advance of and spaced from the same at the supports, and means independent of the said securing means for securing the shield band to the carrier member and supporting it thereby, said shield band being free of connecting means in front of the supports.

WALTER F. SCHULZ.