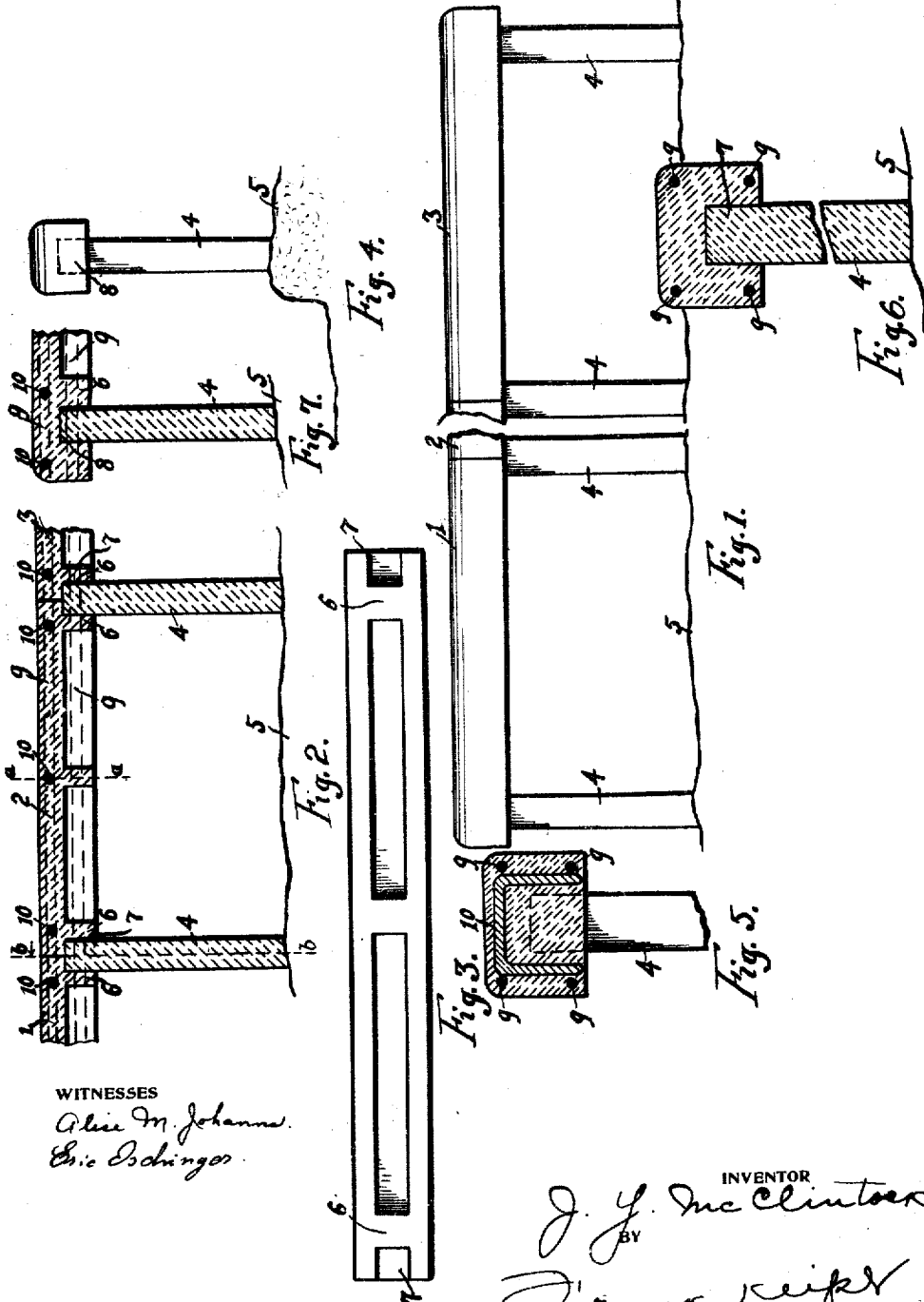


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 GUARD RAIL.
 APPLICATION FILED AUG. 15, 1910.

1,012,397.

Patented Dec. 19, 1911.



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GUARD-RAIL.

1,012,397.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed August 15, 1910. Serial No. 577,336.

To all whom it may concern.

Be it known that I, J. Y. McCLINTOCK, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Guard-Rails, of which the following is a specification.

The present invention relates to guard rails for highways, bridges and similar places and it has for an object the provision of an inexpensive construction which will either deflect automobiles or other vehicles or effectively stop the same to prevent such vehicles passing off the bridge or down a bank.

To these and other ends the invention consists in certain parts and combinations of parts all of which will be hereinafter described, the novel features being pointed out in the appended claims.

In the drawings: Figure 1 is a side view of a guard rail constructed in accordance with this invention; Fig. 2 is a vertical longitudinal section of the intermediate rail member shown in Fig. 1 with portions of two proximate rail members and their supports; Fig. 3 is a bottom view of an intermediate rail member; Fig. 4 is an end view of the guard rail; Fig. 5 is a section on line *a-a* Fig. 2; Fig. 6 is a section on line *b-b* Fig. 2; and Fig. 7 is a detail view of one end of the guard rail.

The article forming the subject matter of this invention is placed along one or both sides of bridges, highways or other places where it is desired to prevent persons or vehicles leaving the proper path or road. It is so strong that it will not give way under impact for there is greater danger to the occupants of vehicles in passing off bridges or banks than there is in the destruction of the vehicles. Furthermore, the device, if struck at any angle by a vehicle, will tend to guide or deflect the latter without causing the destruction thereof. Its construction is such that it may be manufactured and installed at a minimum cost, and provision has been made to permit it to adapt itself to the settling of the earth in which it may be supported.

The guard rail may be of any desired length. In the illustrated embodiment three rail members 1, 2 and 3 are employed, supported on posts or uprights 4 which are preferably of uniform thickness and are formed

of concrete, reinforced if desired. The rail members are also preferably formed of concrete and are supported by the uprights at such a distance above the supporting surface 5 that they will be struck by the wheels of the vehicles.

When the posts or uprights are supported in earth the latter settles and it is therefore desirable to support each rail member at two points only and independently of the others, whereby with the sinking or dropping of a post or upright the rail member or members partially supported thereby may also drop, thus giving flexibility to the guard rail. Of course, the connection between the posts or uprights and the rail members is such that it permits this flexing, while at the same time it insures the parts against separation due to impact.

My improved guard rail is made preferably of two kinds of rails or sections and upright posts, which are substantially uniform in length, cross section and general appearance. Of the two kinds of sections of the rail, the one is the intermediate rail illustrated in plan view in Fig. 3, and illustrated in vertical section in Fig. 2. In this rail a half pocket 7 is formed at each end which will hold substantially one-half of the upper end of the post on which the guard rail is to be positioned, and when two of these guard rails are placed in direct abutment, as illustrated in Fig. 2, a pocket is formed between them that will inclose all of the head of the post 4. I prefer to make these pockets uniform so that half of the complete pocket is formed on the end of each intermediate section and on one end of the end section, although it is obvious that any other fractional division will answer the purpose, so that when the two rails are placed end to end in abutment the complete pocket is formed, and each of the rails contains enough of the pocket to form a positive engagement with the head of the post.

In Figs. 1 and 7 I have illustrated the end form of rail section. As illustrated in Fig. 7, this rail section contains a complete pocket at one end. That is, a pocket that is closed on five sides and open only at the bottom. This pocket is large enough to receive the entire end of the post 4. At the other end this end section contains half of the pocket similar to that shown in either section in Fig. 2. Where the guard rail is but two sections long, two of these

end rails would be supported on three posts, the middle post supporting both rails as they come into abutment, and as shown at either side of Fig. 2, while the outside posts would support the rail as shown in Fig. 7.

Where more than two sections are placed in the rail, the end sections would be the same as that described while the intermediate sections would be similar to those shown in Fig. 3, in which case each of the intermediate posts would support two of the consecutive sections placed end to end in abutment. The post 4 is preferably square or rectangular in cross section, although it is obvious that any other form of post would answer the purpose equally as well. In this instance each rail member is of inverted U-shape in cross section with transverse or cross pieces 6 of concrete connecting the sides thereof at intervals to strengthen the same, two of said cross pieces being located near the ends of each rail member to form downwardly opening pockets 7, each of a width equal to the width of a post so as to receive the upper end of one of said posts. Some of these pockets open laterally in the direction of the length of the guard rails so that the proximate ends of proximate rail members may fit on a single post or upright, while other of the pockets receive a single post and are closed as at 8 to form the ends of the guard rail.

The rail members 1, 2 and 3 may be strengthened in any suitable manner as by four longitudinal metallic rods 9 extending throughout the length of each rail member. Transverse strength may be obtained by U-shaped metallic members 10 located at the transverse or cross pieces, and overlapping the rods 9.

As before pointed out, the guard rail is installed at the side of a highway or bridge, the posts resting on or being embedded in a suitable support. The rail members rest loosely on the upper ends of the uprights and each is held in place by its own weight, those I have constructed each weighing about 350 pounds. With this arrangement it is impossible for the rail members to be displaced accidentally from the support. They are of such strength that they can sustain an impact of very great force and the pockets at their ends in which the upper ends of the posts fit prevent horizontal movement in any direction. The vertical

movement can be effected only by a force acting upwardly to overcome the weight of the rail member, and as this will not occur accidentally it is apparent that the accidental displacement of the rail members cannot take place. There is no liability of the guard rail being destroyed by the settling of the earth as the rail members are independent of each other and may thus lower with the lowering of either post supporting the same. The rail members have their side edges lying in vertical planes beyond the vertical outer faces of the posts or uprights, so that if the rail members are struck at an angle by a vehicle moving with force the wheels will be deflected and will not engage the posts or uprights.

What I claim is:

1. A concrete guard rail section having a pocket formed on each end, said pockets being closed on four sides and open on two sides, each of said pockets being so formed that when two of said guard rail sections are placed end to end in abutment said pockets will form between them a pocket closed on five sides and open on one side.

2. A concrete guard rail section having a pocket formed on one end thereof, said pocket being open on two sides and closed on four sides, said pocket being so formed that when two of said guard rail sections each having a similar pocket on the end thereof, are placed end to end in abutment with said pockets adjacent to each other, said pockets will form between them a pocket closed on five sides and open on one side.

3. A concrete guard rail section having a pocket on each end, each of said pockets being closed on four sides and open on two sides, one of said open sides being on each end of the rail section and the other open side being adjacent thereto, reinforcing members extending through said guard rail section between said pockets, and a reinforcing member extending around three sides of each of said pockets and transversely of the guard rail section.

In testimony whereof I affix my signature in presence of two witnesses.

J. Y. McCLINTOCK.

Witnesses:

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