My invention relates to road guards and more particularly to a device of that character embodying flexible metallic rail sections and posts for supporting the sections in end to end relation along the side of a road for absorbing a great amount of the impact incident to a vehicle striking the guard and for directing such vehicle back toward the road.

Although various means have been devised for connecting the ends of sections of a guard rail to each other and to supporting posts, such mounting means commonly tend to weaken the guard rail at the point of connection and it is therefore the principal object of my invention to provide means for connecting the adjacent ends of rail sections throughout their entire width, thereby producing a joint that is exceptionally strong and will withstand substantially as great a strain as the intermediate portions of the sections.

A further object of the invention is to provide means for yieldingly connecting the sections to supporting posts in a manner to permit a limited amount of yielding lateral movement of the sections in relation to the posts.

In accomplishing these and other objects of my 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 road guard shown along the side of a road and constructed in accordance with my invention.

Fig. 2 is an enlarged detail perspective view of a seating member, overlapped offset ends of rail sections, a locking member and connector bolts in disassembled but related condition.

Fig. 3 is a cross section of the assembled guard members on the line 3-3, Fig. 1.

Referring more in detail to the drawing:

1 describes a road guard embodying my invention and illustrated as being arranged in functional position along the curved portion of a roadway 2 for decreasing the danger of injury to occupants of vehicles leaving the road and striking the guard. The guard includes a series of supporting posts 3 preferably comprising H-beam members having central webs 4 and edge flanges 5, and set firmly in the ground or in concrete adjacent the side of the road, as in common practice.

A rail 6 of the road guard is preferably constructed of flexible metallic sections 7 joined at their ends to form a continuous ribbon, and in order to securely connect the members 7 without weakening the ribbon, the ends of the sections are bent reversely along transverse lines 8 and 9 to produce terminating end portions 10 offset from the sections by lateral flanges 11.

When in use the end portions are arranged in overlapped relation as shown in Fig. 2 and, with the ends in this condition they produce a joint of channel form adapted to engage a seating member 12 having a cross section of improved channel shape and having a length equal to the width of the rail.

A locking member 13, also having a length equal to the width of the rail section, is provided for snugly seating in a recess 14 formed by the overlapped, offset ends of adjacent sections, and preferably comprises a casting of channel shaped cross section corresponding to the dimensions of the recess.

In order to securely connect the locking member, rail ends and seating member to each other and to the supporting posts a plurality of vertically aligned transverse openings 15, 16, and 17 are respectively provided in the locking member, rail ends and seating member in registering relation for receiving connector bolts 18 adapted to be extended therethrough, the web portion 19 of the locking member being of increased thickness to permit provision of countersunk recesses 20 co-axial with the openings 15 for receiving heads 21 formed on the inner ends of the bolts.

The supporting posts are likewise provided with slots 22 extending through the webs and flanges of the posts and registerable with the openings in the rail members, the slots being elongated transversely, particularly in the edge flange adjacent the rail guard, to permit limited lateral or pivotal movement of the connector bolts in the posts when extended therethrough.

To yieldingly space the rail from the support compression springs 23 are mounted over the bolts 18 and are seated between the member 12 and the posts. Similar springs 24 are further sleeved over the outer ends of the bolts for engaging the opposite flanges of the supporting posts to cooperate with the springs 23 for normally maintaining the connector bolts in substantially parallel relation with the webs of the supports, and are retained thereon by nuts 25 engaging the outer threaded ends 26 of the bolts, washers 27 being interposed between the nuts and outer ends of the spring 24. The use of the springs 24 is further particularly desirable when the guard is erected in a curve as shown in Fig. 1, since an impact on the in-
ner face of the guard will tend to straighten the curved ribbon thereby causing these springs to serve as shock absorbers.

While no specific structure is shown for anchoring the ends of the guard rail either fixedly or yieldingly it will be apparent that any suitable method heretofore devised may be employed for this purpose.

Assuming a road guard to be constructed as described, the effect thereon of a vehicle striking the fence would be as follows:

Upon a substantially direct impact on the rail the springs 23 together with the inherent resiliency of the rail serve to absorb a large portion of the shock and, due to the secure mounting of the rail ends between the seating and locking members, thereby producing a substantially unitary rail, the impact of one rail section will be transmitted throughout the entire ribbon, the limited freedom of lateral movement of the connector bolts permitting sufficient displacement of the rail ends in relation to the supporting posts.

By providing the locking members of a depth equal to that of the recess formed by the channel ends of the rails and further by countersinking the ends of the bolts in the locking members the inner face of the rail presents a continuous smooth surface to eliminate all possibility of inwardly extended projections which might engage a wheel hub or similar projecting element of a vehicle passing along the rail. It will be apparent that due to the mounting of spring members on opposite sides of the supports the connector bolts will normally be maintained in parallel relation to the support webs but will be enabled to move transversely in the slots 22 thereof without twisting the supports.

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

1. In apparatus of the character described, a seating member, means for supporting the seating member, rail sections having offset ends housed in the seating member, and a locking member cooperating with the seating member to anchor the ends of the rails in the seating member and means countersunk in the locking member for retaining said locking member, offset ends and seating members in assembled condition.

2. In apparatus of the character described, a seating member having a recess, a support for the seating member, rail sections having end portions adapted to seat in said recess, a locking member cooperating with the seating member to anchor said end portions in the recess, and means countersunk in the locking member and extending through the ends of the rail sections, the seating member and the locking member for attaching the same to the support.

3. In apparatus of the character described, a seating member, a support for the seating member, rail sections having end portions engaging the seating member, a locking member cooperating with the seating member to anchor said end portions to the seating member, and means for yieldingly connecting said end portions, seating member and locking member to the support.

4. In apparatus of the character described, a seating member, a support for the seating member, rail sections having overlapped ends engaging the seating member, a locking member cooperating with the seating member to anchor said ends to the seating member, and means extended through the seating member, overlapped ends and anchor member for connecting said members to the support.

5. In apparatus of the character described, a seating member, a support for the seating member, rail sections having overlapped ends engaging the seating member, a locking member cooperating with the seating member to anchor said ends to the seating member, and means extended through the seating member, overlapped ends, anchor member and support for connecting said members to the support and having limited free lateral movement relative to the support.

6. In apparatus of the character described, a seating member having a recess, a support for the seating member, rail sections having offset ends adapted to seat in said recess, a locking member cooperating with the seating member to anchor the offset ends of the rails in the recess and having an outer face substantially flush with inner faces of the rail sections, and bolts for connecting said members to the support having heads countersunk in said locking member.

7. In apparatus of the character described, rail sections, a support for said sections having a transverse slot, means for securing adjacent ends of the sections to the support including a bolt extended through said slot for lateral movement therein in relation to the support, and springs mounted on the bolt on opposite sides of the support for normally retaining the bolt in substantially parallel relation to the support and for yieldingly spacing said sections from the support.

8. In apparatus of the character described, a seating member having a recess, a support for the seating member, rail sections having offset ends adapted to seat in said recess and to form a corresponding recess, a locking member cooperating with the seating member to anchor said offset ends in the recess and substantially filling said corresponding recess, and means countersunk in the locking member for connecting said sections to the support.

9. In apparatus of the character described, a seating member having a recess, a support for the seating member, rail sections having offset, overlapped ends adapted to seat in said recess and forming a corresponding recess, a locking member cooperating with the seating member to anchor said overlapped ends in the recess and substantially filling said corresponding recess, and means countersunk in the locking member and extended through the locking member, overlapped ends and seating member for connecting said members to the support.

10. In apparatus of the character described, a seating member having a recess, a support for the seating member having a transverse slot, rail sections having offset, overlapped ends adapted to seat in said recess and to form a corresponding recess, a locking member cooperating with the seating member to anchor said overlapped ends in the recess and substantially filling said corresponding recess, a bolt countersunk in the locking member and extended through the locking member, overlapped ends, seating member and support for connecting said members to the support, and springs mounted on the bolt on opposite sides of the support for normally retaining the bolt in substantially parallel relation to the support and for yieldingly spacing said sections from the support.
11. In a guard rail of the character described, a seating member, means for supporting the seating member, rail sections having overlapped ends housed in the seating member, a locking member cooperating with the seating member to anchor the ends of the rail sections in the seating member and having an outer face substantially flush with the rail sections to provide a continuous smooth inner surface for the rail, and means for clamping the seating member, rail ends and locking member together without interrupting said smooth inner surface.

12. In a road guard of the character described, a seating member having a recess, rail sections having offset ends adapted to seat in said recess, a locking member cooperating with the seating member to anchor said offset ends in the recess and having its outer face substantially flush with the rail sections to provide a continuous smooth inner surface for the guard, and means for retaining the seating member, rail ends and locking member in assembled condition without interrupting said smooth inner surface.

RUDOLPH B. BOYLE.