March 18, 1924. 1,487,260

W. J. MOORE

COLLISION SCREEN

Filed April 24, 1922 4 Sheets-Sheet 1

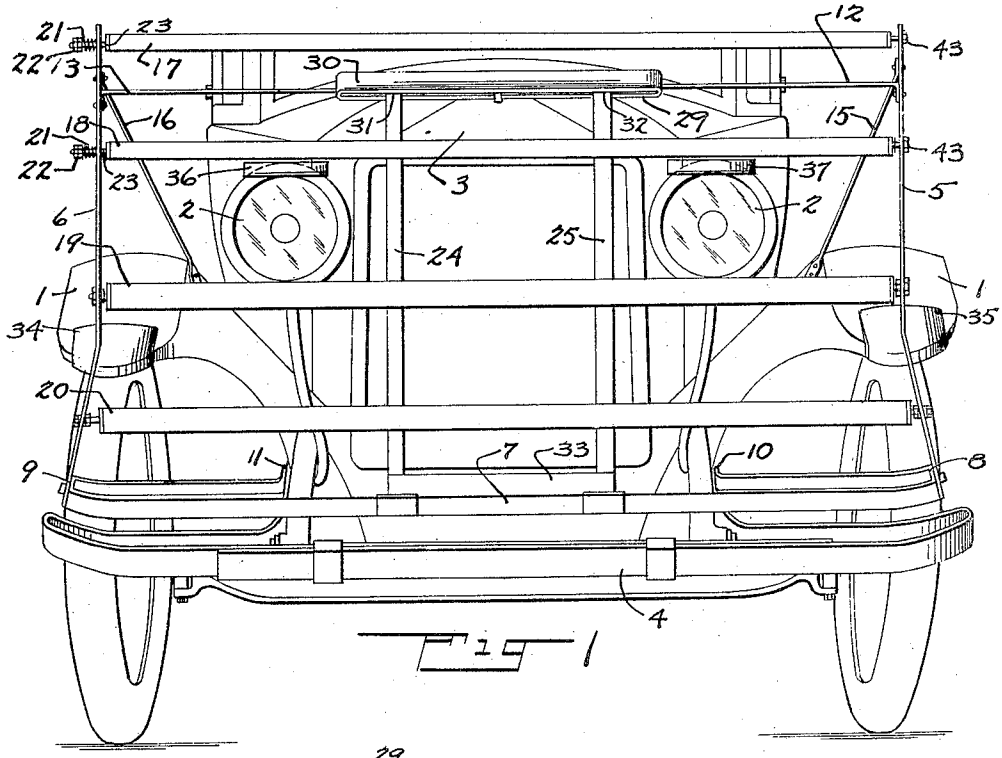

Fig 1

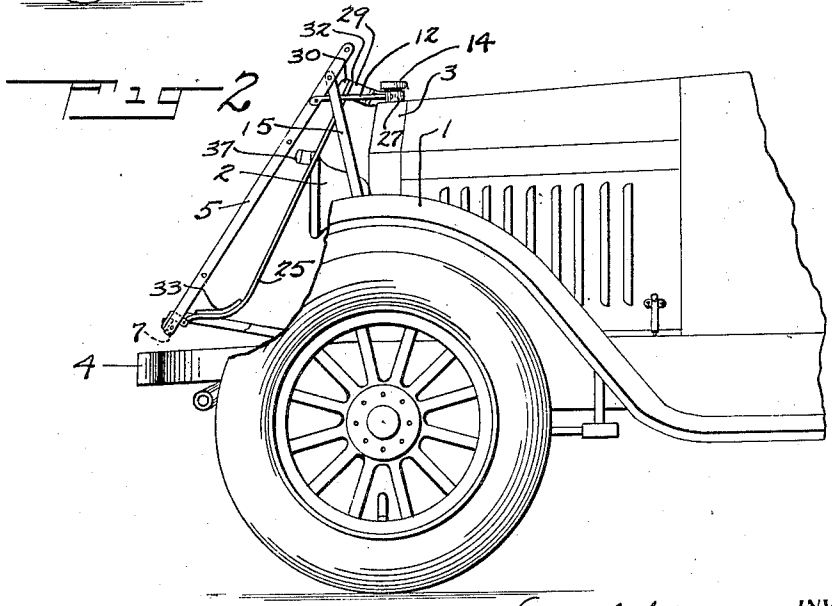

Fig 2

INVENTOR

Walter J. Moore

BY

Thomas Howe ATTORNEY

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Fig 3

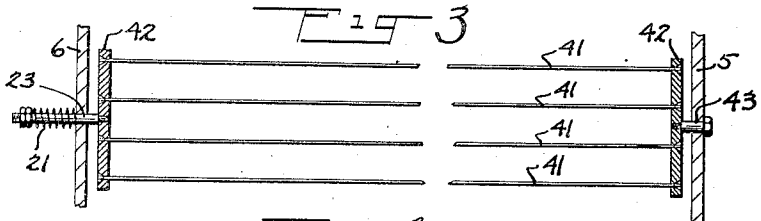


Fig 4

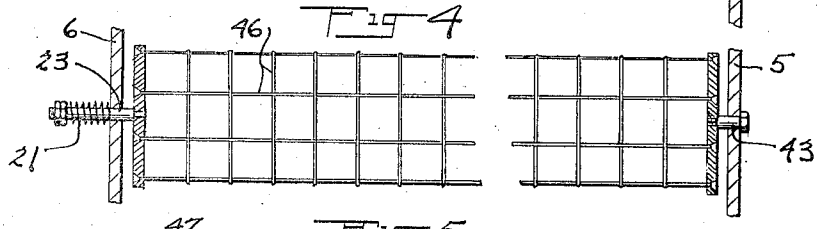


Fig 5

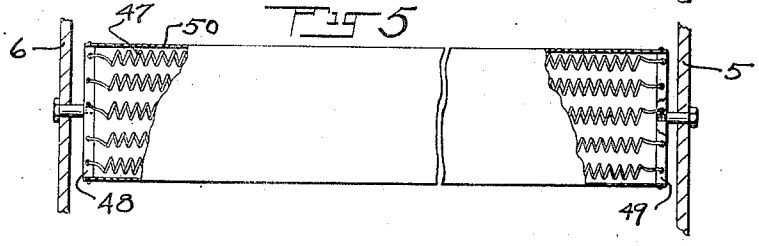


Fig 7

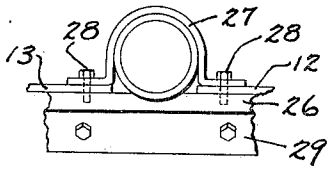


Fig 6

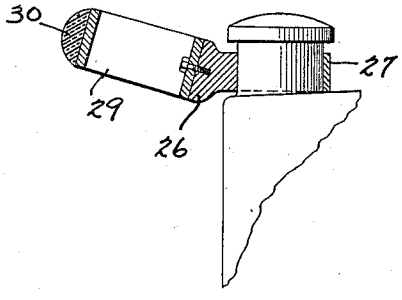


Fig 15

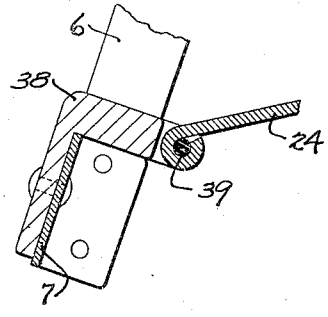
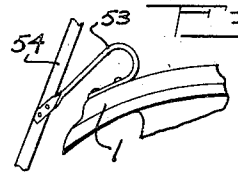


Fig 14



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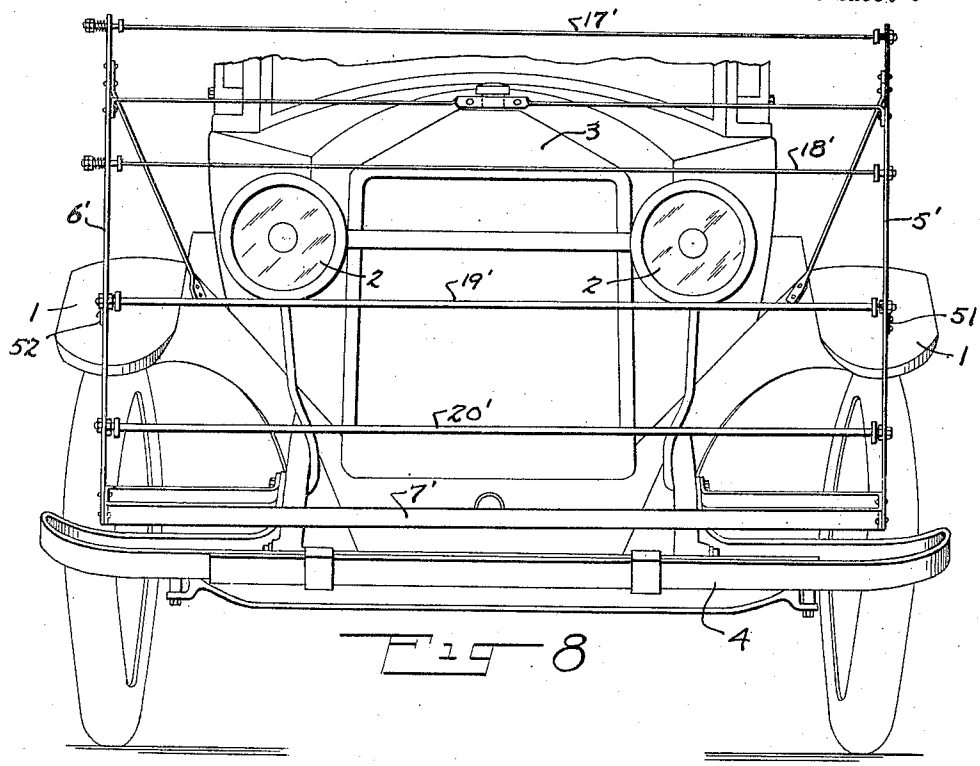

Fig 8

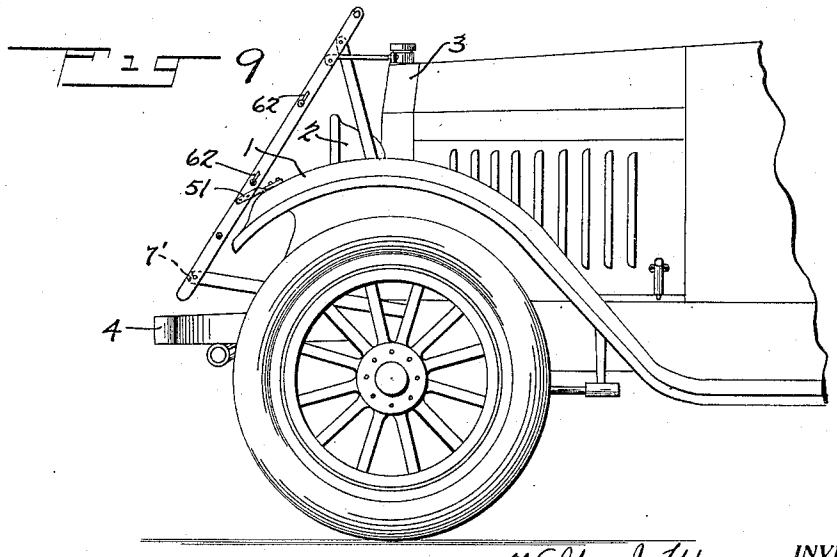

Fig 9

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Fig 10

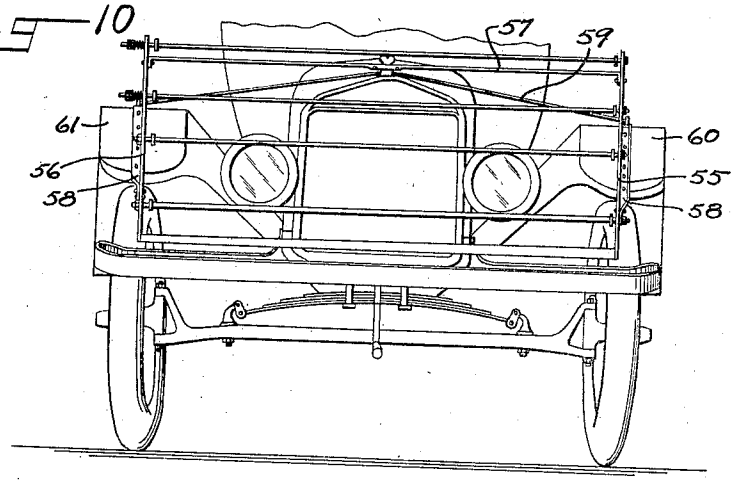


Fig 11

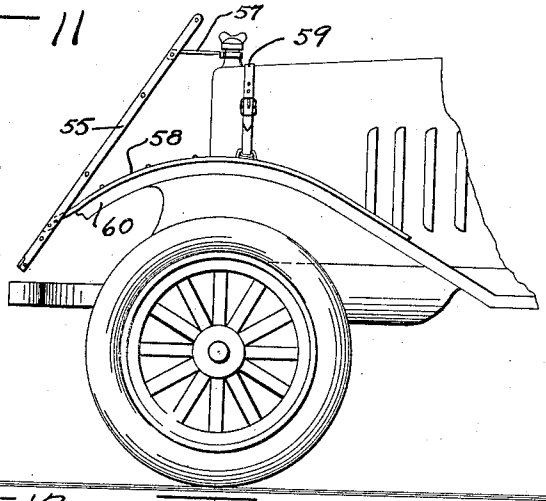


Fig 12

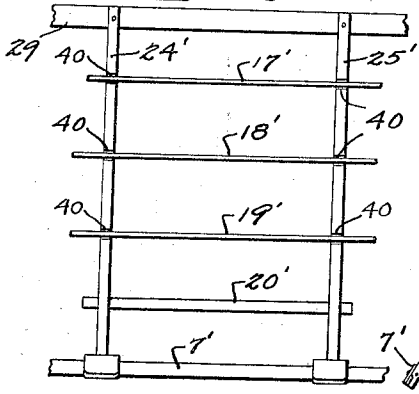
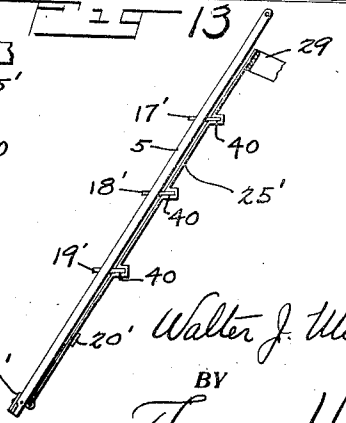


Fig 13



Walter J. Moore INVENTOR

BY

Thomas Howe ATTORNEY

Patented Mar. 18, 1924. 1,487,260

UNITED STATES PATENT OFFICE.

WALTER J. MOORE, OF NEW YORK, N. Y.

COLLISION SCREEN.

Application filed April 24, 1922. Serial No. 556,225.

To all whom it may concern:

Be it known that I, WALTER J. MOORE, a citizen of the United States of America, residing at city, county, and State of New York, have invented new and useful Improvements in Collision Screens, of which the following is a specification.

This invention relates to safety fenders for automobiles and other vehicles and is especially intended for taking the impact of the body of a person struck by the car so that the person is so far as possible preserved from injury.

The object of the present invention is to provide a structure similar to that of my prior application Serial Number 505,835 filed October 8, 1921, but it is an improvement thereon in numerous particulars as to structure and operation.

One of the objects of the invention is to provide an improved construction whereby the frame structure of the fender is rendered simpler and more substantial.

A further object of the invention is to provide an improved means for imparting resilience to the fending members.

A further object of the invention is to provide a means which is adapted to receive the body of persons struck in a sitting posture with means for breaking the fall of the person in being thrown into the seating means.

A further object of the invention is to provide an improved construction of fender whereby the vision of the driver and the ventilation through the radiator, etc., will not be unduly interfered with.

A further object of the invention is to provide cushioning means for various projecting parts of the vehicle or its equipment so that the person struck is not liable to be injured thereby.

A further object of the invention is to reinforce the mud guards of the vehicle where necessary for making them sufficiently strong or stiff to cooperate in sustaining the safety fender.

In the accompanying drawings which illustrate the invention—

Fig. 1 is a front elevation of an automobile to which the improved fending device is applied;

Fig. 2 is a side elevation of the front end of an automobile as shown in Fig. 1 on a reduced scale;

Fig. 3 is a fragmentary view of a fender showing a construction of one of the apertured straps;

Fig. 4 is a view of a modified structure of strap;

Fig. 5 is a still further modified structure of strap;

Fig. 6 is a fragmentary view showing the top portion of a radiator with a cushioning means secured thereto;

Fig. 7 is a top plan view of the apparatus of Fig. 6 with the radiator cap removed and the supporting means for the cushion in place but the cushion itself removed;

Fig. 8 is a front elevation of an automobile having a modified form of safety fender;

Fig. 9 is a side elevation of the front of an automobile equipped as in Fig. 8 but on a reduced scale;

Fig. 10 is a front elevation of an automobile having an equipment similar to the equipments of Figs. 1, 2, 8 and 9 but on a reduced scale and having a modified mounting for the fender;

Fig. 11 is a side elevation of the front end of a car as shown in Fig. 10;

Fig. 12 is a fragmentary view showing the manner of mounting the seating means with relation to the straps of the fender;

Fig. 13 is an end elevation of the apparatus of Fig. 12;

Fig. 14 is a fragmentary view showing in side elevation a manner of securing a fender frame in a resilient manner to the mud guard; and

Fig. 15 is a fragmentary view showing a detail of construction.

Referring to the drawings and first to Figs. 1 and 2, the automobile is equipped with the usual mud guards 1, lamps 2, radiator 3 and collision bumper 4, the last being secured in any suitable way to the chassis of the vehicle as is well known.

The safety fender or collision screen comprises the frame members 5 and 6 which are metal straps or strips of greater width than thickness having their greater dimension in line with the line of vision of the driver of the car so that as little interference as possible with the vision of the driver may be combined with maximum strength to support a body collided with. At their lower ends the strips 5 and 6 are bent outwardly as shown so as to prevent any bodies struck from falling backwardly against the wheel. At their lower ends the frame members 5

and 6 are secured to the bar 7 which passes across the front of the vehicle from the point of attachment of the member 5 at 8 to the point of attachment of the member 6 at 9, while both of these ends are bent inwardly and secured to the chassis at 10 and 11 respectively.

The upper portions of the members 5 and 6 are held in position by means of the brace rods 12 and 13 which extend from the radiator intake 14 to the members 5 and 6 respectively. Also the members are braced from the mud guards by the braces 15 and 16 respectively which are respectively in the planes of vision of the operator of the car with the members 5 and 6 so that that vision is as little interfered with as possible.

Extending between the frame members 5 and 6 are the straps 17, 18, 19 and 20, that is to say these members are of greater width than thickness. They may be made of leather, metal or other suitable material and are also resilient themselves or may be resiliently supported by any suitable means such as springs 21 inserted between the nuts 22 on the bolts 23 secured to the ends of the straps and extending through holes in the frame member 6. It will be observed that each of these straps is pivotally mounted at its ends in the frame member so that by loosening the securing nuts the strap can be turned into any desired angular position and secured in that position by tightening the nuts.

Having their lower ends secured to the member 7 and lying in back of the straps 17 to 20 inclusive as shown most clearly in Fig. 2 are straps 24 and 25 which, at their upper ends, are secured to the intake by means as shown best in Figs. 6 and 7. Referring to these figures last mentioned a bracket 26 is clamped to the radiator intake by a strap 27 having screws 28 passing through the strap and also the braces 12 and 13 and into the bracket 26. To the front of the bracket 26 is secured a looped resilient member 29 having a pad 30 at its forward side, the whole forming a resilient cushion for preventing injurious impact of the head or other portion of the person struck. The straps 24 and 25 are secured to the member 29 at 31 and 32 and extending between the straps 24 and 25 and secured thereto is a band 33 which may receive the body of the person struck in a sitting posture, the body of this person coming against the straps 17 to 20 inclusive has its fall broken and the resiliency of the construction permitting the straps to give, forces them backwardly against the strips 24 and 25 so as to form a back for the seat and prevent the person from forcibly coming against the portions of the vehicle whereby he would be injured.

It will be observed that certain of the straps are disposed above the top of the radiator and this is of importance in that the upper portions of a person falling would tend to come downwardly upon the radiator and this is prevented by the straps being above it.

Also resilient pads 34 and 35 are placed at the front ends of the mud guards and similar pads 36 and 37 are placed upon the upper edges of the lamps. By this arrangement it will be seen that all projecting parts of the vehicle are provided with guards, against their injuring a person struck. The pads on the lamps will not interfere with the illumination because being at the upper portions of the lamps they will only cover those portions which are shaded under any circumstances.

Referring to Fig. 15 it will be seen that the manner of connecting the straps 24 and 25, for instance 24, with the bar 7 is accomplished by means of a bracket 38 secured to the bar 7 and extending rearwardly, the strip 24 having its end secured about a pin 39 in the bracket 38.

Instead of the strips 24 and 25 being at some distance back of the straps 17 to 20 inclusive the construction may be arranged as shown in Figs. 12 and 13 wherein the strips 24′ and 25′ corresponding to the strips 24 and 25 of the apparatus of Figs. 1 and 2 have their lower ends secured to the bar 7′ mounted on the chassis and corresponding to the bar 7 of Figs. 1 and 2. The strips 24′ and 25′, however, are in close relation to the straps 17′, 18′, 19′ and 20′ corresponding to the straps 17 to 20 inclusive of Figs. 1 and 2 and are provided with slots or recesses 40 adapted to receive the straps edgewise as shown most clearly in Fig. 13, thereby holding the straps with their greatest dimension of cross section longitudinal of the vehicle so as to interfere as little as possible with the vision of the driver and also to support the straps against sagging against the radiator.

The structure of the straps 17 to 20 inclusive may be any suitable to accomplish the objects sought. By the construction of Fig. 3 the strap is formed of a plurality of wires 41 secured at their ends to end pieces 42 which are respectively pivoted in the frame members 5 and 6 by means of bolts 43 and 44, a resilient mounting being provided by a spring 45 in a manner as already referred to. This strip can be held in any desired angular position as before referred to and being open does not interfere with the vision of the driver at whatever angle it may be placed as he can see through it and also in whatever position it may be it readily permits passage of ventilating air to the radiator. These straps, having apertures in them, may be placed at desired distances apart or may be placed so close together as to be edge to edge so as to form substantially a continuous screen, the aper-

tures, under such circumstances, permitting vision and the passage of ventilating air as before referred to; even where there are no apertures in the straps they might be placed so close together as to be edge to edge and form a substantially continuous screen when adjusted into a certain position, the necessary apertures being formed through the screen by turning these unapertured straps, like shutters, so that the vision will not be interfered with and ventilating air may pass. In all cases it is of course desirable that sufficient apertures should be left in front of the lamps so that the desired illumination will not be interfered with. It is to be understood that various forms of straps may be dictated by considerations of expediency may be used at different parts of the same collision screen, it not being necessary to employ the same kind of a strap throughout the whole screen. In Fig. 4 is shown a similar construction except instead of the wires 41 the strap is formed by a wire netting 46 between the end pieces. Where the strap is located below the line of vision of the operator and where it would not interfere with the passage of air to the radiator, the question of obstruction of the air is not so important. A strap suitable for such use is shown in Fig. 5 wherein a resilient strap is formed by a number of helical springs 47 extending between and secured to the end pieces 48 and 49 and the whole covered with canvas 50. The resiliency for the strap thus provided, the springs as 45 may be omitted, the resiliency of the springs within the strap being sufficient.

Referring now to Figs. 8 and 9, the apparatus is the same as that shown in Figs. 1 and 2 except that the central seat portion comprising the strips 24 and 25 and also the part 29 is omitted and the adjustment of the parts is somewhat different. Also the members 5′ and 6′ are shown as being straight instead of curved at their lower ends, this being a simpler construction and one which is sufficient under many circumstances. It will be observed that the straps 17′ to 20′ inclusive are so angularly adjusted that their greatest dimensions of cross section are longitudinal of the vehicle. There is also a further modification in this case that braces 51 and 52 are secured to the extreme forward end of the mud guard and to the members 5′ and 6′.

To form a resilient mounting for the fender upon the mud guard the reflexed support 53 (see Fig. 14) may be employed to secure each frame member as 54 corresponding to the member 5 or 6 to the mud guard 1.

It will be seen that the frame members are provided with slots 62 whereby the straps may be adjusted longitudinally of the frame members. These slots are provided for the two lower straps in which resilience may be supplied by the inherent resilience of the straps themselves as for instance a construction like that shown in Fig. 5 and consequently the bolts securing the straps may be firmly clamped to the frame members at any desired positions in the slots.

Referring now to Figs. 10 and 11 a structure is shown wherein the fender or screen is mounted upon the super-structure such as the radiator and mud guards without connection to the chassis, this being a desirable structure in some instances. In this construction the frame members 55 and 56 corresponding to the members 5 and 6 of Figs. 1 and 2 are each secured, for instance the member 55, by means of a brace 57 secured to the radiator intake and to the frame member, and the frame member is also supported on the mud guard by a metal strap 58 secured at its forward end to the frame member and riveted over a considerable extent of the mud guard so as to reinforce the same. Also since the mud guard may not be sufficiently stiff and strong to support the screen or fender a strap 59 secured at its ends to the mud guards 60 and 61 passes over and is supported by the radiator or hood.

It will now be seen that when a person is struck by a collision bumper and tends to fall backwardly, the backward slant of the screen or fender permits him to fall backwardly and he first comes against the resilient straps which break his fall and then, where the seat is provided, he is caught in a sitting posture without injury. On account of the padding of the most prominently projecting parts of the vehicle danger from coming against them is avoided.

While the invention has been illustrated in what are considered its best applications it may have other embodiments without departing from its spirit and is not therefore limited to the structures shown in the drawings.

What I claim is:

1. The combination with a vehicle of a safety device across the end of said vehicle comprising a seat portion for a person struck, a bumper forward of said device and means in front of said seat portion for breaking the fall of said person before he becomes seated in the device.

2. The combination with a vehicle of a safety device across the end of said vehicle comprising a seat portion for a person struck, a bumper forward of said device and resilient means in front of said seat portion for breaking the fall of said person before he becomes seated in the device.

3. The combination with a vehicle having a radiator and chassis, of a seat device in front of said radiator and having its upper portion secured to said radiator, means for securing its lower portion to said chassis and a bumper forward of said device.

4. The combination with a vehicle having a radiator, chassis, and mud guards, of a seat device in front of said radiator and having its upper portion secured to said radiator, means for securing it to said mud guards and a bumper forward of said device.

5. The combination with a vehicle having a radiator of a screen for receiving persons struck and a resilient pad secured to the upper portion of said radiator.

6. A vehicle having a radiator, of a seating device in front of said radiator, a resilient pad adjacent the top of said radiator, said device having its upper portion secured to said radiator and means for securing said device to a portion of the vehicle other than said radiator.

7. The combination with a vehicle having a lamp, of a screen for receiving persons struck and a resilient pad on said lamp.

8. The combination with a vehicle having a mud guard, of a screen for receiving persons struck and a pad on said mud guard.

9. The combination with a vehicle having a radiator and mud guards, of a resilient seating device in front of said radiator and resilient pads on said mud guards.

10. The combination with a vehicle having a radiator and lamps, of a resilient seating device in front of said radiator and resilient pads on said lamps.

11. The combination with a vehicle, of a safety device across the end of said vehicle comprising transverse body receiving members and members extending transversely of the aforesaid members and at the rear thereof adapted to reinforce the body receiving members.

12. The combination with a vehicle, of a safety device across the end of said vehicle comprising transverse resilient body receiving members and members extending transversely of the aforesaid members and at the rear thereof and adapted to reinforce said body receiving members.

13. The combination with a vehicle having a radiator and a chassis, of a safety device extending across the end of said vehicle and comprising substantially horizontal resilient members and members transverse of the aforesaid members and in the rear thereof and secured to said radiator and chassis.

14. The combination with a vehicle, of a safety fender extending across the end thereof comprising frame members and transversely extending straps each pivotally connected at its ends in said frame members to turn about an axis extending longitudinally of said strap.

15. The combination with a vehicle, of a collision screen extending across the end thereof comprising frame members and straps extending between said frame members and individually adjustable longitudinally thereof.

16. The combination with a vehicle having a radiator, of a collision screen in front of said radiator comprising independent frame members at opposite sides of the radiator and substantially horizontal straps extending between said frame members, one or more of said straps being above the top of said radiator.

17. The combination with a vehicle having a hood and mud guards, of a collision screen secured to said mud guards and means secured to said mud guards and passing over said hood for reinforcing said mud guards.

18. The combination with a vehicle, of a collision screen comprising vertical frame members, straps extending between said frame members and one above the other and means for resiliently mounting said straps on said frame members.

19. The combination with a vehicle having a radiator of a screen for receiving persons struck, said screen being at least in part above the bottom of the radiator and cushioning means secured to the radiator intake.

20. The combination with a vehicle having mud guards, of a collision screen at one end thereof comprising a supporting member secured to the chassis of the vehicle and extending across the vehicle below the mud guards and frame members extending upwardly from and secured to said supporting member and fending means extending between said supporting members and seat members between said frame members and extending transversely of said fending means, said seat members being secured to said supporting member at their lower ends and to a part of the vehicle at their upper ends.

21. The combination with a vehicle having a radiator, of a collision screen at one end thereof comprising a supporting member secured to the chassis of the vehicle and extending across the vehicle below the mud guards and frame members extending upwardly from and secured to said supporting member and fending means extending between said supporting members and members between said frame members and extending transversely of said fending means, the last said members being secured to said supporting member at their lower ends and to the radiator at their upper ends.

22. The combination with a vehicle, of a collision screen at the end thereof comprising frame members, resilient body receiving means extending between and secured to said frame members and seat members intermediate said frame members and at the rear of said body receiving means, the said receiving means breaking the fall of a body being seated in said seat members.

23. The combination with a vehicle having

mud guards, of a collision screen mounted upon said vehicle and extending above and below said mud guards, said screen being entirely unsupported below said mud guards.

24. The combination with a vehicle, of a safety device across the end of said vehicle comprising a seat portion for a person struck, a bumper forward of said device and separate therefrom and means for breaking the fall of said person before he becomes seated in the device.

25. The combination with a vehicle, of a safety device across the end of said vehicle comprising a seat portion for the person struck, a bumper forward of said device and separate therefrom and resilient means for breaking the fall of said person before he becomes seated in the device.

26. The combination with an automobile of vertically extending means across the end of said vehicle for receiving persons struck, said automobile comprising mud guards, and means for resiliently connecting said means with said mud guards.

27. The combination with an automobile of vertically extending means across the end of said vehicle for receiving persons struck, said automobile comprising mud guards and reflexed means for resiliently connecting said means with said mud guards.

28. The combination with an automobile having mud guards on opposite sides of the vehicle, a protective device for persons struck extending between and connected with said mud guards and a collision bumper disposed across the vehicle below said device, said bumper being separate from and forward of said device whereby objects struck will contact with said bumper before the protective device.

29. The combination with an automobile having a radiator of means for preventing a person from becoming injured by coming forcibly in contact with the top of the radiator, said means comprising a resilient strip having a front impact surface, said strip being reflexed at the ends of said impact surface and said strip being secured to said radiator.

30. The combination with an automobile having a headlight, of means for preventing injury to a person struck by coming in contact with said headlight, said means comprising a reflexed metal strip having an impact surface at the front and rearwardly reflexed portions at the ends thereof, said strip being secured to said headlight.

31. The combination with an automobile, having a radiator, of means for preventing the impact of a person struck against the top of said radiator comprising securing means for securing the aforesaid means to the radiator and cushioning means bent upwardly from the horizontal when secured in position on the radiator.

32. The combination with an automobile having a lamp, of means for protecting persons from coming in contact with the top of the lamp comprising a cushioning device including a securing portion and a cushioning portion bent upwardly from the horizontal when secured in position upon the lamp.

33. A device for protecting persons struck by vehicles from injury comprising in combination a vehicle, a headlight, and a bumper forward of said light for contacting the person struck prior to said headlight and a resilient buffer mounted on said headlight.

34. A device for protecting persons struck by vehicles from injury comprising in combination a vehicle, mud guards thereon, a bumper forward of said mud guards adapted to contact persons struck prior to said mud guards and resilient buffers mounted upon the forward ends of said mud guards.

35. A device for protecting persons struck by vehicles from injury comprising in combination a vehicle, a radiator, a bumper forward of said radiator adapted to contact persons struck prior to said radiator and a resilient buffer mounted at the upper part of said radiator.

36. A device for protecting persons struck by vehicles from injury comprising in combination a vehicle, mud guards, head lights, a radiator, a bumper forward of said guards, head lights and radiator and adapted to contact with a person struck prior to any of said guards, headlights or radiator and resilient buffers mounted on the forward ends of said mud guards and the upper portions of said lights and said radiator.

In testimony whereof I have signed this specification this 20th day of April, 1922.

WALTER J. MOORE.