P. E. DEMMER.

BUMPER.

APPLICATION FILED JAN. 23, 1922.

1,422,546. Patented July 11, 1922.

Fig. 1

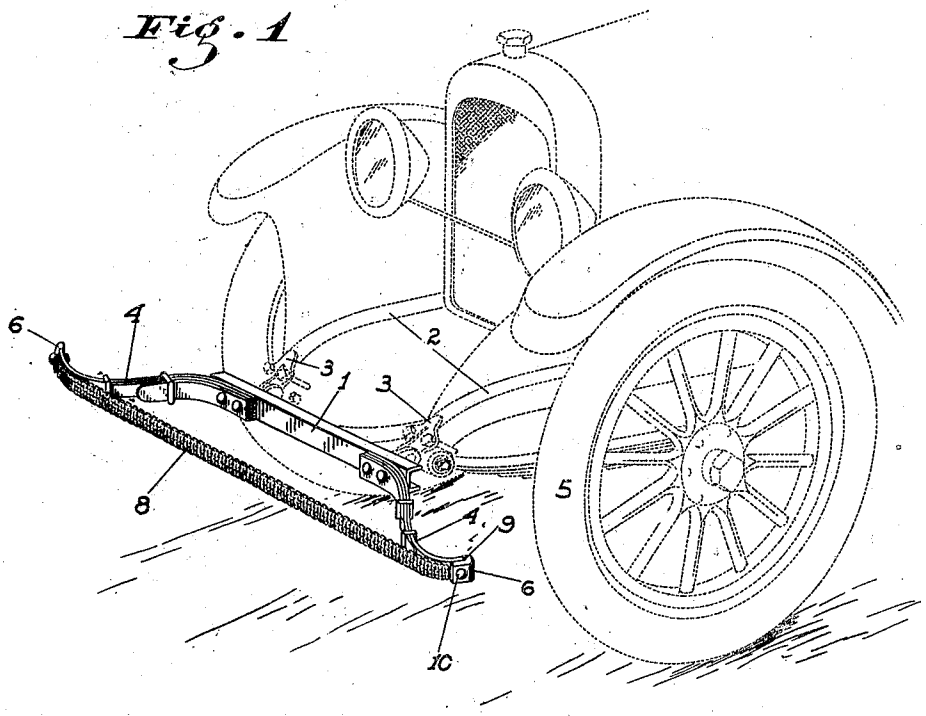
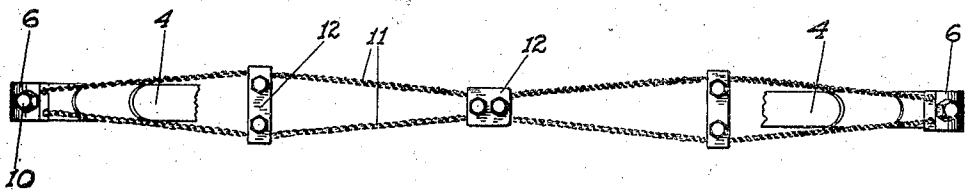


Fig. 2



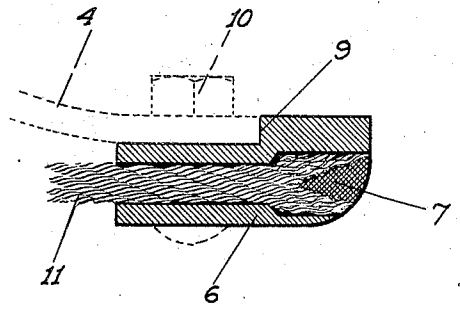


Fig. 3

INVENTOR.

Paul E. Demmer

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UNITED STATES PATENT OFFICE.

PAUL E. DEMMER, OF MARYSVILLE, CALIFORNIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO D & W SPECIALTY COMPANY, OF MARYSVILLE, CALIFORNIA, A CORPORATION.

BUMPER.

1,422,546. Specification of Letters Patent. Patented July 11, 1922.

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To all whom it may concern:

Be it known that I, PAUL E. DEMMER, a citizen of the United States, residing at Marysville, county of Yuba, State of California, have invented certain new and useful Improvements in Bumper; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in bumpers such as are used on both or either end of motor vehicles to permit damage to the wheels and chassis generally in the event of a collision.

The principal object of my invention is to provide such a bumper which is extremely resilient or elastic, and at the same time very substantial, and so constructed that a car having the same thereon and striking a fixed obstruction while travelling at a fair speed, will not only be stopped, but will be thrown back a certain distance, without damage to the car or the bumper, and very likely without damage to the obstruction.

Another object is to construct the bumper in such a manner that its resilient action will be had regardless of whether an object is struck, or a blow or shock taken, at the center or near either end. Further the bumper, after being in action, will always resume its normal setting.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Fig. 1 is a perspective outline of the front end of an automobile, showing one form of my improved bumper installed thereon.

Fig. 2 is a front view of a modified form of bumper.

Fig. 3 is an enlarged sectional view of a cable-anchor block.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes a rigid beam adapted to extend transversely of and in front of the car-frames 2 and to be secured thereto by rigid brackets 3 of any suitable form.

Fixed to the beam 1 at the ends are leaf springs 4, which project forwardly of said beam, and their free outer ends lie a suitable distance ahead of the car wheels 5 and substantially in alinement with the outer faces thereof, or even beyond.

Secured to the outer ends of the springs on the forward face thereof are blocks 6, in which are anchored in any suitable manner, as for instance as is shown at 7 (see Fig. 3) the ends of a flexible member 8 which extends between the springs. This member as shown in Fig. 1 is in the form of a flexible steel woven band of rectangular cross-section, which can be purchased in the market, and it is normally held under tension by reason of the outer ends of the spring being brought together somewhat and placed under tension before the flexible band and its anchor blocks are positioned. These blocks are provided with shoulders 9 against which the ends of the springs abut, so that very little strain is taken by the fastening bolts 10.

Instead of the single band 8, two or more flexible steel cables 11 may be used, these being spread and held apart in a vertical plane by spacer blocks 12. In either case the action is of course the same.

The springs 4 are preferably S-shaped or reverse-curved, this being the best form to allow of their spring or elastic movement in both directions, but any other shape found suitable for the purpose may of course be employed.

In operation, if an obstruction strikes the flexible band or cables near the center, this will move toward the beam 1, and the outer ends of the springs 4 will move toward each other. Owing to the natural tension under which the springs are held, which is increased by the above described action, the tendency of the flexible member is to resume its normal and straight-line position, and as a result the vehicle usually rebounds free of the obstacle struck, without damage to the vehicle or bumper, the latter at once resuming its natural alinement.

Neither, unless it be of very thin or weak

material, will the obstacle be damaged to any extent, since the physical properties of the flexible member are such that it conforms itself readily to the contour of that portion of the obstacle struck thereby, and the force of the blow is thus transmitted directly over a considerable area of the obstacle, instead of being concentrated at one point, as is the case if the forward bumper-bar is a rigid member as usual.

If the blow is taken at or near either end of the flexible member, the adjacent spring moves outwardly and rearwardly, while the other spring is moved a corresponding amount inwardly and forwardly, both springs still being under tension so that when the strain is removed the bumper again resumes its normal posture as before.

The beam 1 has no function other than to provide a convenient means interposed between the springs and the chassis for attaching the springs to the chassis, rather than attempting to fasten the springs directly to the chassis.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice, such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent, is:—

1. A bumper for vehicles including spaced spring members fixed to and projecting beyond the frames of the vehicle and away from each other, the springs being arranged for deflection under tension laterally of the vehicle in both directions, and a flexible structure fixed to and extending between the free ends of the springs.

2. A bumper for vehicles including spaced spring members fixed to and projecting beyond the frames of the vehicle, the springs being arranged for deflection transversely of the vehicle, and their free ends tending to separate from each other, and a flexible structure fixed to and extending between the free ends of the springs, the latter being forced together somewhat before the flexible structure is mounted thereon whereby to hold the flexible structure normally under tension.

3. A bumper for vehicles including spaced spring members fixed to and projecting beyond the frames of the vehicle, the springs being arranged for deflection transversely of the vehicle, a flexible structure extending between the springs at their outer ends, and blocks in which the ends of the flexible structure are anchored secured to the outer ends of the springs, the blocks having shoulders against which the ends of the springs abut.

In testimony whereof I affix my signature.

PAUL E. DEMMER.