Feb. 26, 1929.

1,703,700

G. W. YANSS

BUMPER

Filed March 9, 1926

Fig. 1.

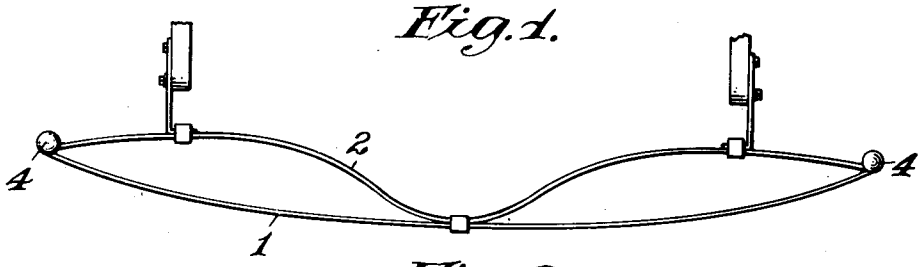


Fig. 2.

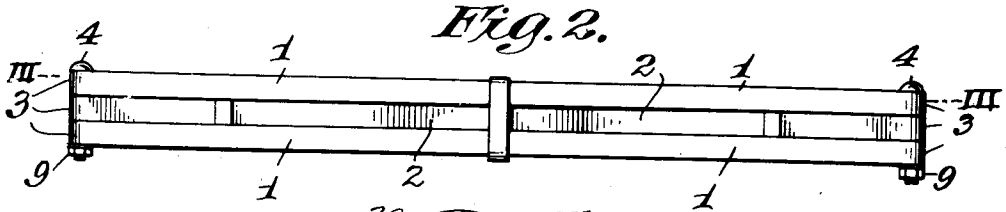


Fig. 3a

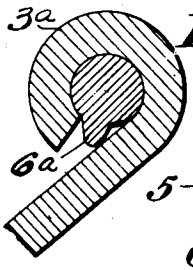


Fig. 3.

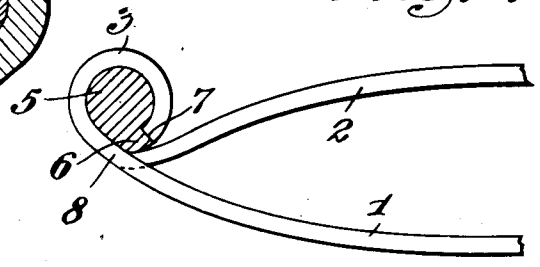


Fig. 4.

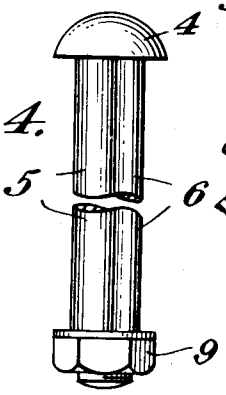


Fig. 5.

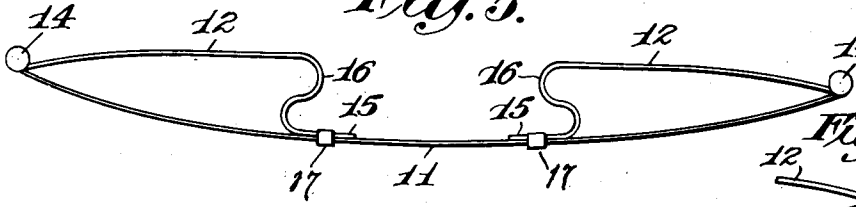


Fig. 5a.



Fig. 6.

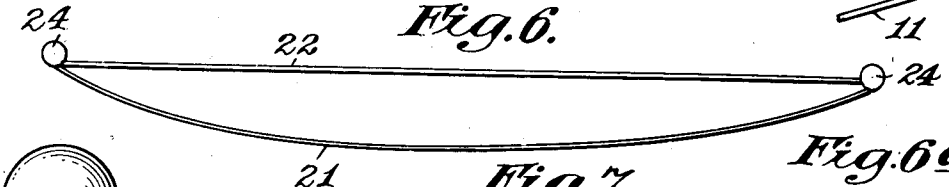


Fig. 6a.

Fig. 7.

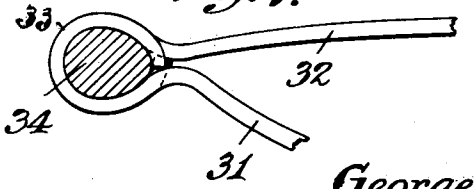
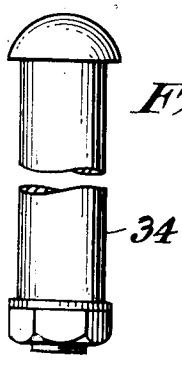
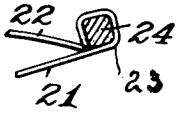


Fig. 8.





Inventor
George W. Yanss

By his Attorney
Frederick S. Duncan

Patented Feb. 26, 1929. 1,703,700

UNITED STATES PATENT OFFICE.

GEORGE W. YANSS, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO AMERICAN CHAIN COMPANY, INC., A CORPORATION OF NEW YORK.

BUMPER.

Application filed March 9, 1926. Serial No. 93,358.

An object of my invention is to provide a connection for the adjacent ends of bumper bars which affords a firm and rigid union free from vibration and which permits two or more bars to be connected and disconnected readily, the invention being of particular utility when embodied in the construction of bumpers comprising flat strip bars of resilient metal, connected edge to edge, although I contemplate the use of the improvements in any field of bumper construction for which they are fitted by their nature,

More particularly the primary object of the invention is to provide such a connection comprising a plurality of bars having respectively eyes formed in their lateral extremities and pins fitted in the adjacent eyes of the bars when assembled with their extremities in superimposed relation, the pins serving thereby to connect the bars, and having means for drawing and maintaining said eyes in rigid assembly with said pins, the pins being of non-circular cross-section so that no pivotal or rotative movement of the eyes is possible relatively to the pins.

Referring to the drawings,

Figure 1 is a plan view of a bumper in which is incorporated one form of my invention.

Fig. 2 is a view thereof in front elevation.

Fig. 3 is an enlarged fragmentary detail view in horizontal section on the line III—III of Fig. 2, and Fig. 3ª shows a modification.

Fig. 4 is a detail view in elevation of the preferred form of connecting pin, isolated.

Fig. 5 is a plan view of a bumper of a different construction from that shown in Figs. 1 to 4, and showing incorporated therein a modification of my invention.

Fig. 6 is a similar view of another form of bumper and another modification of my invention.

Fig. 7 is a fragmentary view similar to Fig. 3 upon a larger scale of still another modification of the connecting means.

Fig. 8 is an elevation of the form of pin shown in Fig. 7, isolated.

Fig. 5ª is an enlarged fragmentary sectional view similar to Fig. 3, showing in detail one of the connections illustrated in Fig. 5.

Fig. 6ª is a view similar to Fig. 5ª, showing in cross-sectional detail one of the connections illustrated in Fig. 6.

The form shown in Figs. 1 to 4 is particularly applicable for connecting the extremities of bumper bars of the general type shown in Figs. 1 and 2. This type of bumper is characterized by the fact that the front or impact surface is composed of two strips 1, 1, of steel extending the entire length of the bumper and joined at their ends to the ends of a rear bar 2. The two front strips are vertically spaced usually throughout their length a distance equal to the width of the rear bar, and the end of the rear bar spaces the ends of the front bars, so that the three ends adjoin each other edge to edge.

In pursuance of my invention, each of the bars 1, 1, and 2 is provided at its respective lateral extremities with eyes 3, and the several eyes of adjacent extremities of the bars when assembled in superimposed relation, as shown in Fig. 2, are transfixed by pins 4, one at each end of the bumper.

These pins may be of any suitable structure and contour to afford a connection which will not permit pivotal or rotative movement of the eyes relatively to the pins, and as one convenient form of pin for this purpose I have shown the pins 4 as having shanks 5 shaped in cross-section substantially like the conventional cam, as shown in Fig. 3, the shank being provided with a longitudinal rib 6 which renders it non-circular in contour, the rib 6 being adapted to enter the space between the end 7 of the eye 3 and the region 8 at which the eye merges with the bar.

In this form the eyes on the bars 1, 1, and 2 are similar, and have their ends 7 similarly directed, so that the rib 6 will fit in all of the spaces. The eyes preferably fit snugly around the pin, so that the eyes can not rotate or pivot upon the pin, and when the pin takes the preferred form illustrated in Figs. 1 to 4 of a bolt having a head 4 and retaining nut 9, these parts serve as means to draw and maintain the eyes in rigid assembly with the pins, also permitting ready connection and disconnection of these associated parts.

Fig. 3ª illustrates a joint in which a pin having a rib 6ª of modified cross-section is assembled in non-rotatable relation with

the eyes, of which one is shown at 3a, this constituting a modified form of non-pivotal joint.

The invention may be embodied in other forms of bumper and with connecting pins of modified contour, and in Fig. 5 I have shown a bumper having front bars 11 like the front bars of the bumper already illustrated and described, these bars having their lateral extremities formed into eyes 13 fitted with pins 14 of triangular cross-section, which serves as another serviceable form of non-circular pin adapted to prevent rotative and pivotal movement of the pin and eyes relatively to each other. Two rear-bars 12, 12, are shown in the bumper, having eyes 13 like the eyes on the bars 12, and fitted to the pins 14 between the eyes on the bars 11, spacing the latter apart, and the ends 15 of the bars 12 are carried forward with reverse bends 16 and joined to the front bars by clamps, as indicated at 17.

In Fig. 6 is shown a bumper having upper and lower bars 21 and a rear bar 22 joined at their ends by square pins 24, transfixing eyes of similar shape, 23, formed at the lateral extremities of the bars 21 and 22. In all of the bumper connections above described the eyes are formed by bending the bar ends in the same direction, but the front and rear bars may have the eyes formed by bending the rear bar-end in an opposite direction from that of the front bar-ends. Such a form is shown in Fig. 7, in which the eye 33 of the front bar 31 is bent around pin 34 having an oval shank, as shown in cross-section in Fig. 7 and in elevation in Fig. 8, while the corresponding eye of the rear bar 32 is formed by bending the bar-end around the pin 34 in the opposite direction.

By thus connecting the eyes at the lateral extremities of the component bars of multi-bar bumpers with pins of non-circular section upon which the eyes are fitted non-pivotally and non-rotatably, the resistance of the bumper structure to deflection by impacts received adjacent to the ends is increased considerably as compared with the resistance offered by bumpers having pivotal or rotatable bar-end connections.

Having described my invention, I claim:—

1. In a connection for bumper bars a plurality of bars provided respectively with eyes, and a pin of non-circular section fitted non-rotatably within said eyes and serving thereby to connect said bars with each other in such a manner as to prevent any pivotal action of the bars relatively to the pin.

2. In a connection for bumper bars a plurality of bars provided respectively with eyes, and a pin of non-circular section fitted non-rotatably within said eyes and serving thereby to connect said bars with each other in such a manner as to prevent any pivotal action of the bars relatively to the pin, and means for drawing and maintaining said eyes in rigid assembly with said pin.

3. In a connection for bumper bars a plurality of bars provided respectively at their lateral extremities with eyes, and a pin of non-circular cross-section fitted within said eyes and serving thereby to connect said bars, and means for drawing and maintaining said eyes in rigid assembly with said pin.

4. In a connection for flat strip bumper bars a plurality of bars provided respectively with eyes, a pin fitted within said eyes and serving thereby to connect said bars, said pin having a rib intervening between the shank of the pin and the end of the bar forming the eye, and means for drawing and maintaining said eyes in rigid assembly with said pin.

5. A connection for bumper bars, comprising a pin, a plurality of bars provided respectively at their lateral extremities with eyes, and having said extremities arranged in proximity to each other, a pin fitted non-pivotally within said eyes and serving thereby to connect said bars, and means for drawing and maintaining said eyes in rigid assembly with said pin.

6. In a connection for bumper bars a plurality of bars provided respectively with eyes, and a headed pin fitted within said eyes and serving thereby to connect said bars, said pin being of non-circular cross-section, and said eyes being bent around said pin in opposite directions.

7. In a connection for bumper bars a plurality of bars provided respectively with eyes, and a headed pin fitted within said eyes and serving thereby to connect said bars, said pin being of non-circular cross-section, and said eyes being bent around said pin in opposite directions with their eye-joints covered by said head of the pin.

8. In a bumper a plurality of bow-shaped front bars provided respectively at their lateral extremities with eyes, a pin of non-circular section fitted within said eyes non-rotatably and serving thereby to connect said bars, and a rear bar having eyes fitted upon said pin between said front-bar eyes, to space the front bars apart in vertical position, said rear-bar being connected rigidly with said front bars also at its middle region, forming two subsidiary bows connected rigidly at each end with the front bars and adapted to have a connection at their resilient middle portions with the chassis of a car.

9. In a bumper, a plurality of bow-shaped front bars provided respectively at their lateral extremities with curved connector portions, a pin fitted within said curved connector portions non-rotatably and serving thereby to connect said bars, and a rear bar structure comprising two bars each having adjacent to its outer end a connector portion fitted non-rotatably upon one of said

pins between said front bar connector portions, to space the front bars apart in vertical position, said rear bars being each connected rigidly with said front bars at their middle region also, forming two subsidiary bows connected rigidly at each end with the front bars and adapted to have a connection at their resilient middle portions with the chassis of a car.

10. In a bumper, a plurality of bars provided respectively with curved connector portions adjacent to their ends and a pin fitted non-rotatably within said curved connector portions serving thereby to connect said bars with each other in such a manner as to prevent any pivotal action of the bars relatively to the pin.

In testimony whereof, I have signed this specification.

GEORGE W. YANSS.