

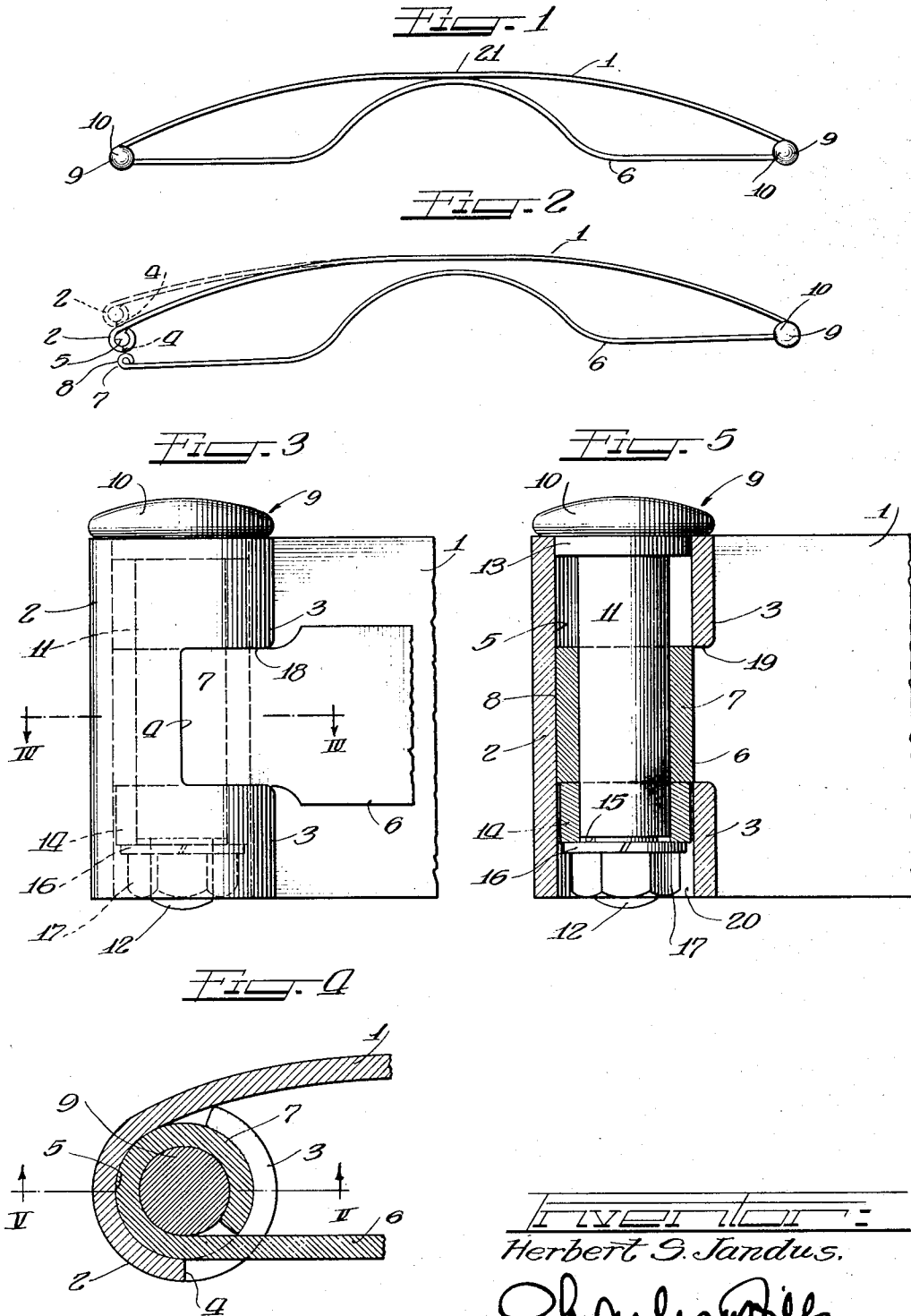
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END CONNECTION FOR BUMPERS

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END CONNECTION FOR BUMPERS

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This invention has to do with bumpers, more particularly of that character known as single bar bumpers.

One of the objects of this invention is to provide an end connection for bumpers, which connection presents a neat appearance, is devoid of obstructions or projecting parts, which may be readily assembled and disassembled, and is so constructed that accidental separation of the bumper bars will be resisted, even in the absence of fastening means.

In carrying out my invention, preferably in connection with a bumper of the single bar type, the impact bar has its ends forked and curled to form bolt eyes. The back bar has its ends reduced to a size to pass between the bifurcations of the ends of the impact bar, and the reduced ends are also curled to form bolt eyes adapted to fit concentrically within the bolt eyes of the impact bar. The bars are preferably resilient, and the impact bar is preferably bowed. The construction of the impact bar is such that the bight of at least one forked end is closer than the remotest portion of the interior wall of the eye to the center of the bar, and the length of the back bar is such that each of its eyes is adapted to engage said remotest portion of each impact bar eye, so that in order to assemble the bars to receive the bolts, it is necessary to flex one of the bars to permit the eyes of the back bar to pass by the bight of one or both of the forks of the impact bar, for disposition of the back bar eyes in concentric relation to the impact bar eyes. Once assembled, bolts are passed through the registering eyes of the bars and nuts are applied to the bolts, the eyes of the impact bar serving to substantially enclose the nut and threaded ends of the bolts laterally, so that there are practically no projections.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawing.

This invention (in a preferred form) is illustrated in the drawing and hereinafter more fully described.

On the drawing:

Figure 1 is a plan view showing the improved bumper.

Figure 2 is a plan view similar to Figure 1, but showing the parts in incomplete assembly and the manner in which assembly is accomplished.

Figure 3 is an enlarged fragmentary elevational view of one end of the bumper made in accordance with the invention.

Figure 4 is a fragmentary sectional view taken approximately in the plane indicated by the line IV—IV in Figure 3.

Figure 5 is a fragmentary sectional view taken approximately in the plane indicated by the line V—V in Figure 4.

Referring now more particularly to the drawing, wherein the same parts are indicated in each case by the same reference characters, the front or impact bar 1 is provided with oppositely disposed eyes 2 which are forked to provide the spaced arms 3 and the bights 4. It will be noted that the bight 4 of each fork is disposed laterally inwardly of the outermost portion 5 of the interior of each eye 2. The back bar has eyes 7 at its ends, the outermost portions 8 of which are adapted, when the bars are assembled, to engage the portions 5 of the eyes 2 of the impact bar 1. Moreover, the eyes 7 are of a shape conforming with the interior of the eyes 2 and when disposed therein are substantially concentric therewith.

If desired, in assembling the bar, the ends of the back bar 6 may be sprung toward each other sufficiently to permit passage of its ends toward the bar 1 beyond the bights 4 of the eyes 2, whereby, upon release of the ends of the bars 6, said ends will snap into the eyes 2. Or, if desired, the ends of the bar 1 may be flexed until the bights 4 are spaced apart a distance in excess of the normal distance between the portions 8 of the eyes 7 of the back bar 6, whereupon said eyes 7 may be moved to positions beyond the bight 4. Upon release of the tension in bar 1, the ends of the latter will snap or move toward the ends of the bar 6 until the eyes 2 enclose the eyes 7.

A still further method may be employed in order to assemble the parts. To this end, an eye of the bar 6 may be placed within a corresponding eye of the bar 1, and then either the opposite end or eye 7 of the back bar flexed to permit the same to pass beyond the bight 4 of the corresponding eye 2 of the bar 1, or one of the eyes 2 may be flexed until its bight 4 will permit passage thereby of the eye 7 of the back bar 6, and in either case the tension released, whereupon the eyes 7 will fit snugly within the eyes 2.

In order to secure the corresponding eyes 2 and 7 of the bars 1 and 6 together, against accidental separation, bolts 9 having heads 10 are provided with shanks 11 fitting in and passing through the eyes 7 of the back bar 6, each shank being smooth throughout the greater portion of its length and being reduced at its extremity to form a threaded portion 12. Adjacent the head

10, each bolt 9 is provided with a shoulder 13 adapted to fit in the eye 2 as shown. After the eye 7 of the back bar 6 is placed in a position shown in Figures 3, 4 and 5, the shank 11 of the bolt 9 is passed through the eye 7 until it rests as shown in Figures 3 and 5, whereupon a sleeve 14 having a length sufficient to allow a portion of the sleeve to project beyond the shoulder 15 of the shank 11, a lock washer 16 and nut 17 are applied. It will be apparent that, as the nuts 17 are tightened, the upper surfaces 18 of the eyes 7 will be forced into tight engagement with the lower surfaces 19 of the upper arms 3 of the eyes 2. Sufficient annular space 20 is provided around the nuts 17 to permit of the insertion of socket wrenches or the like for manipulating the nuts. If desired, a bumper clamp, not shown, may be located at 21.

It will be seen from the foregoing that the invention provides a hinge connection at each end of the bumper, which connection is not only of extremely neat appearance, but involves no sharp or other projecting parts, thereby reducing the possibility of catching clothing or the like to a minimum and also reducing the shipping space. Moreover, the invention involves a minimum of parts, and the arrangement is such that the parts will be in tight contact with one another at all times, thereby eliminating the possibility of rattling.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. In an end connection for a bumper, a bumper bar having a bifurcated end eye, a back bar having an eye at one end, said back bar eye having its outer surface conforming to the inner surface of the first mentioned eye and fitting therein, between the arms of the bifurcation, a bolt having a shoulder fitting within the first eye and having a shank extending through the sec-

ond eye and projecting therebeyond, a sleeve on said bolt and engaging the lower side of the second eye, said bolt being reduced and threaded at the end opposite its head, said sleeve projecting over a portion of the reduced end, a lock washer around said reduced end and in engagement with the lower side of said sleeve, and a nut threaded on said reduced end and exerting pressure on said sleeve, which pressure is transmitted to the second eye to maintain the latter in tight engagement with the lower side of the upper arm of the bifurcation, said nut being located within the lower portion of the first eye and providing with the latter an annular space for the reception of a wrench.

2. In an end connection for a bumper, an impact bar having an eye provided with a slot having an upper wall, a back bar having an eye whose outer surface conforms to and fits in the inner surface of the first eye, said back bar extending adjacent its eye through said slot, a bolt having a head engaging the upper edge of the first eye and formed with an integral shoulder adjacent the head and fitting snugly within the first eye, said bolt having a shank extending through and fitting snugly within the back bar eye and projecting therebeyond, a sleeve on said bolt and engaging the lower side of the back bar eye, said bolt being threaded at its free end and terminating substantially at the lower end of the first eye, a lock washer around said bolt and below said sleeve, and a nut threaded on said shank and exerting pressure through said washer on said sleeve, which pressure is transmitted to the second eye to maintain the latter in engagement with the upper wall of said slot and thereby prevent rattling of the parts, said nut being located substantially entirely within the lower portion of the first eye and providing with the latter an annular space for the reception of a wrench, said sleeve having an outside diameter substantially equal to the inside diameter of the first eye adjacent the back bar eye, whereby to assist in centering the eyes.

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