

March 4, 1930.

B. RUSSELL

1,749,112

BUMPER

Filed Dec. 24, 1928

3 Sheets-Sheet 1

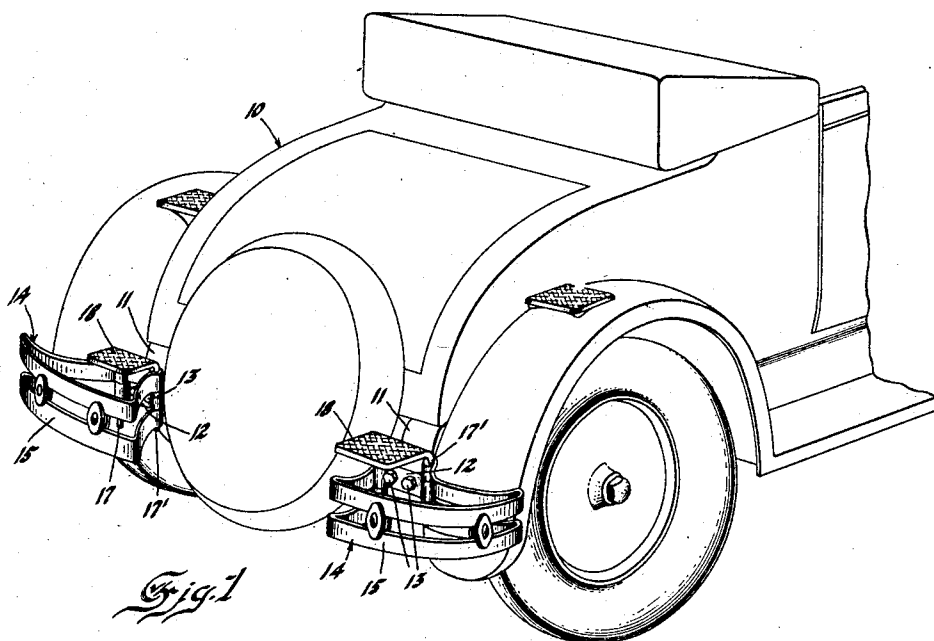


Fig. 1

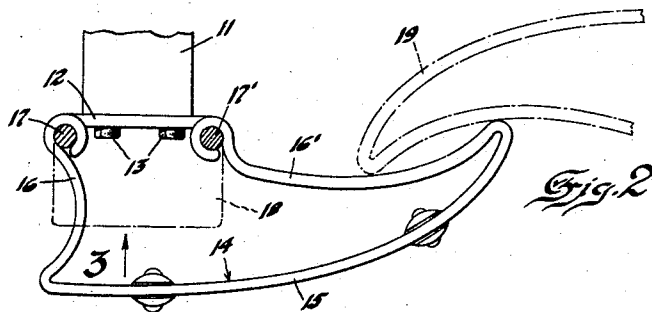


Fig. 2

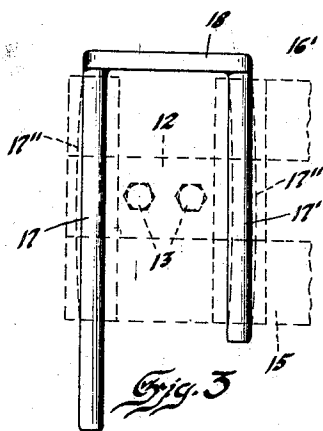


Fig. 3

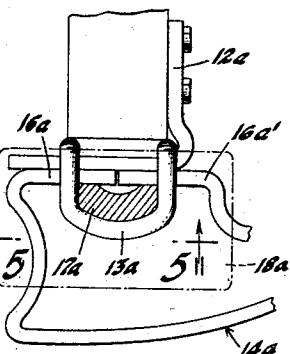
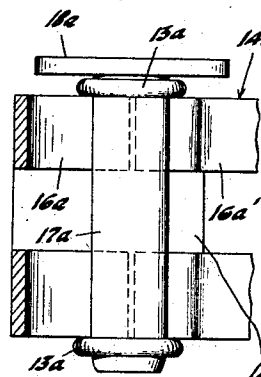


Fig. 4

Inventor

Bert Russell

Fig. 5

By

Blackman, Spencer & Fisher

Attorneys

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3 Sheets-Sheet 2

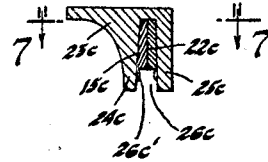
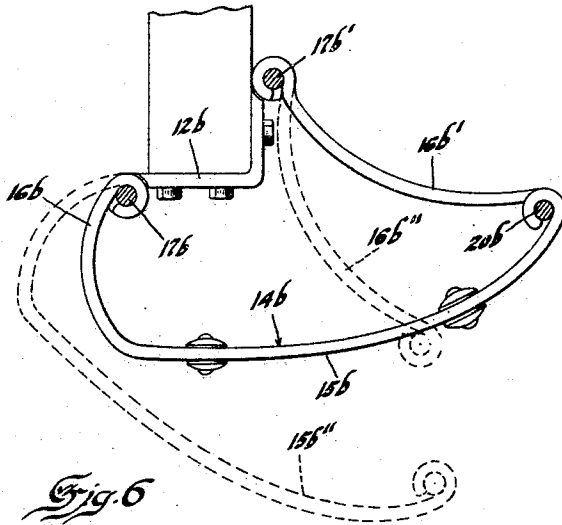


Fig. 8

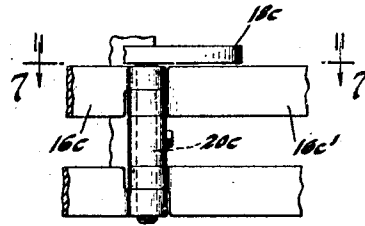


Fig. 9

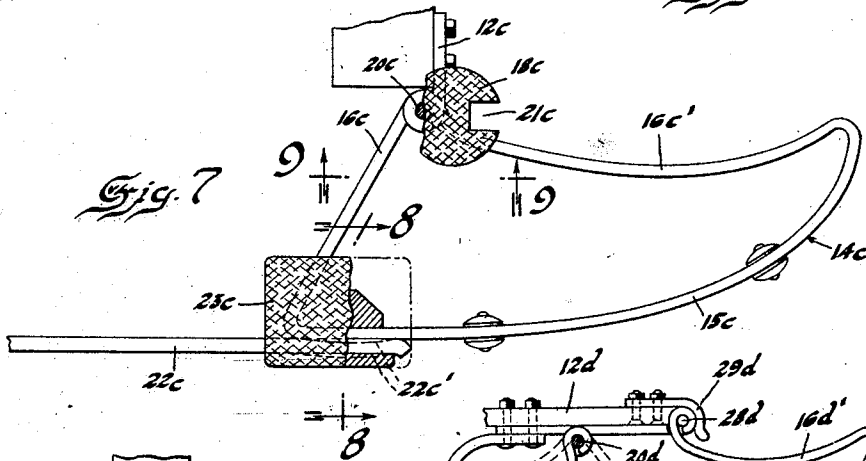


Fig. 7

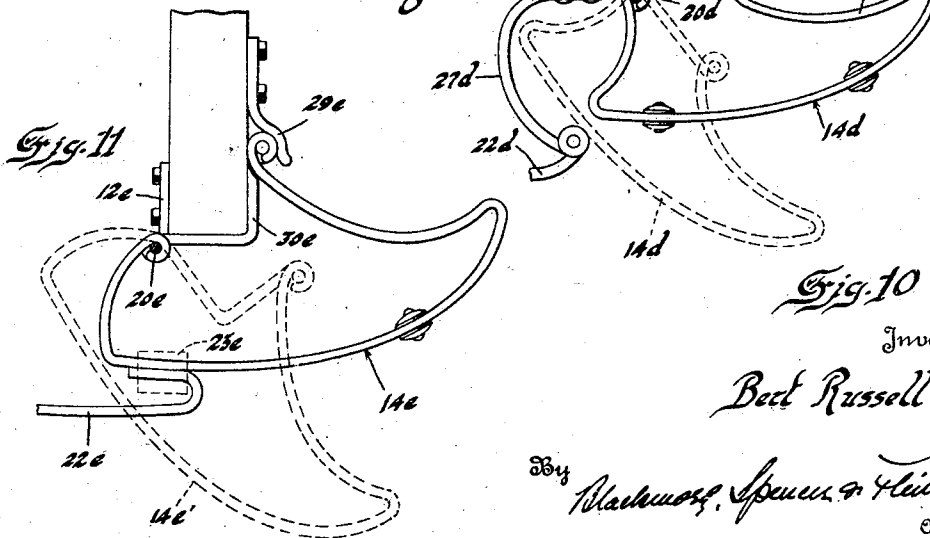


Fig. 10

Inventor

Bert Russell

By *Washburn, Spencer & Finch*
Attorneys

March 4, 1930.

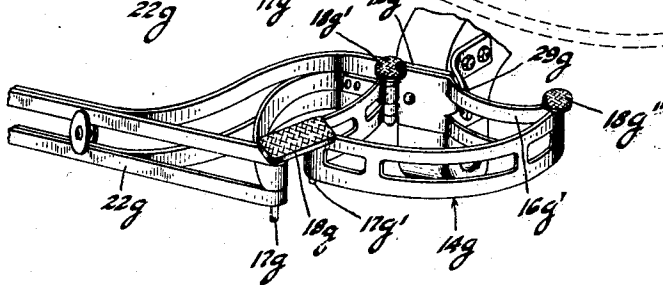
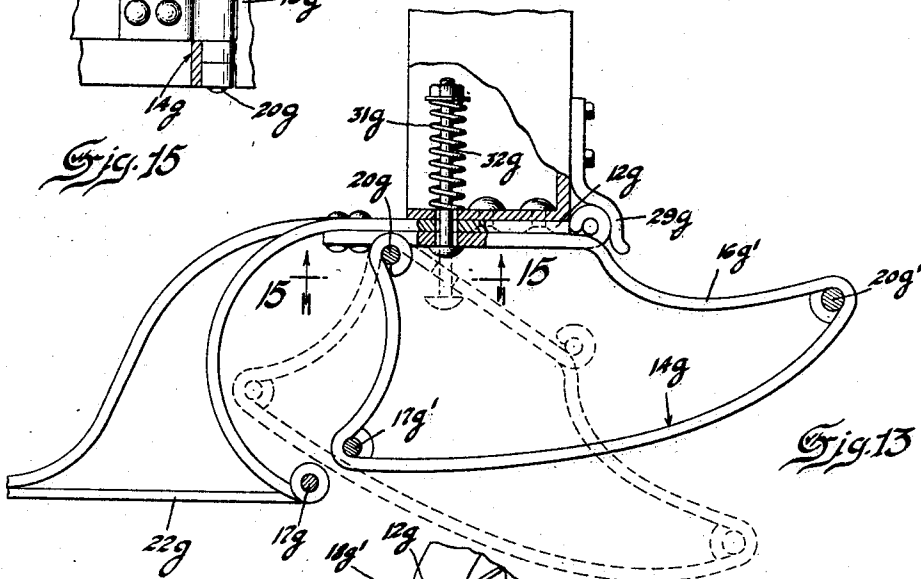
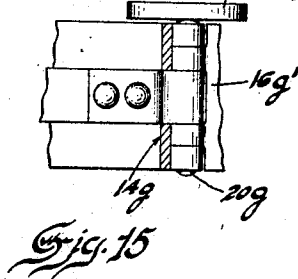
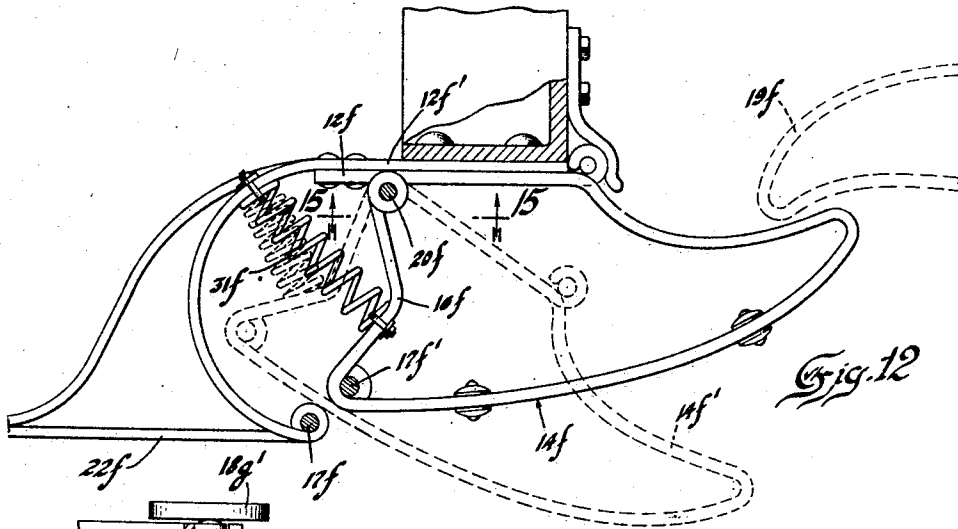
B. RUSSELL

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BUMPER

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3 Sheets-Sheet 3



Inventor

Bert Russell

By *Blackmore, Spencer & Kirk*

Attorney

UNITED STATES PATENT OFFICE

BERT RUSSELL, OF DETROIT, MICHIGAN, ASSIGNOR TO GENERAL MOTORS CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF DELAWARE

BUMPER

Application filed December 24, 1928. Serial No. 328,079.

This invention, although broadly entitled, relates more particularly to so-called "quarter" bumpers, or to bumpers whose outer or terminal sections are outwardly yieldable or conditionally movable,—for the purpose of facilitating the separation of two machines when parts thereof become interlocked as a result of a traffic accident, or the like.

For example, as a result of a misinterpretation of signals or as a result of errors in estimating rates or directions of movement, it is not uncommon for clashing bumpers to become so interlocked that no manipulation, from a driver's seat, of either of the machines directly concerned can separate the same within a reasonable interval of time; and resort to the use of a jack or jacks, to bring the interlocked parts into different planes, seriously taxes the patience of both or all parties concerned. Accordingly, it is a primary objective of this invention to provide what might be referred to as quickly detachable or easily releasable or "companionate" bumpers.

Some forms of this invention utilize special means for interlocking or for resiliently or otherwise interconnecting or coupling quarter bumpers or terminal bumper sections with intermediate or central bumper sections; and some forms of the said invention may utilize special coupling pins or elements which include special "step" parts (the "steps" thereof being comparable with those currently provided upon "sport" models which include "rumble" seats) or other special heads or parts so positioned as to facilitate the use or manual withdrawal of said coupling elements, thereby ordinarily obviating the use of tools to effect the release of an interlocked bumper.

Preferred forms of the present invention may include resilient bumper-positioning means which, although biasing a quarter bumper toward a normal inner or impact-resisting position and supporting it against undesired movement therefrom, nevertheless permit said bumper to swing outwardly from such normal position for automatic disengagement after any interlocking of the same with some part of any other machine.

Other objects of this invention may be appreciated from the following description, including several alternative forms thereof, taken in connection with the appended claims and the accompanying drawings.

Figure 1 may be referred to as a perspective view including only the rear part of an automobile which is equipped with quarter bumpers illustrating one form of the present invention.

Figure 2 is a top plan view of a quarter bumper of that general type which is illustrated in Figure 1,—a terminal portion of an interlocked bumper, carried by another machine, being shown in dotted lines.

Figure 3 is a separate and larger-scale elevational view of a tool-obviating connecting element including a head or handle in the form of a step and suitable for use in such an organization as is shown in preceding figures,—this view being taken from the direction indicated by the arrow 3 of Figure 2, and associated parts being partially indicated in dotted lines.

Figure 4 is a partial view, comparable with Figure 2, but showing an alternative form.

Figure 5 is an elevational view taken as indicated by the line 5—5 of Figure 4.

Figures 6 and 7 are views taken similarly to Figures 2 and 4, but showing further alternatives,—Figure 7 including parts which are broken away substantially to the level indicated by the lines 7—7 in Figures 8 and 9.

Figures 8 and 9 are respectively detail views taken substantially on lines 8—8 and 9—9 of Figure 7.

Figures 10 and 11 and 12 are respectively top plan views taken similarly to Figure 2 but showing further alternative forms.

Figures 13 and 14 are respectively a plan view, showing a further alternative form, and a perspective view corresponding thereto,—optional features being included as hereinafter described.

Figure 15 is a detail sectional view, taken substantially as indicated by the line 15—15 of Figure 12 or the line 15—15 of Figure 13.

Referring first to the disclosure in Figures 1-3 inclusive, a car 10 may have secured to a suitable body or frame element thereof (such

as a shackle-carrying "horn" 11) a bumper-attachment bracket or element 12, permanently retained by welding or by means such as bolts or screws 13; and a quarter bumper 14, including an impact-receiving element 15 and intermediate elements 16 and 16' may be secured to said attachment element by connecting means comprising a removable coupling pin or substantially parallel rod or pin elements 17, 17',—said pin elements preferably serving as gravity-retained means normally securing the mentioned parts in their indicated relationship, although manually engageable, for withdrawal, by means such as special handles in the form of heads or an interconnecting head adapted to serve as a step 18.

In a form shown in Figures 4 and 5, a quarter bumper 14^a is shown as secured to a car-carried attachment element 12^a by means comprising an "endless" clip 13^a and a special coupling element in the form of a rod or pin 17^a,—upwardly terminating in a special head in the form of a step part 18^a. The clip 13^a and the pin 17^a are shown as adapted to cooperate in a locking engagement of abutting ends of intermediate elements 16^a and 16^{a'} of the bumper 14^a.

It will be obvious that in case a bumper 19 or other part of any car becomes interlocked with a quarter bumper of the general character described, in the general manner suggested in Figure 2, an upward withdrawal of pins such as are shown as integral with the step 18 and with the step 18^a effects a complete separation of a corresponding bumper,—to permit withdrawal of the interlocking element 19 before the mentioned parts are restored to their illustrated positions; and coupling elements comparable with the mentioned pins (the pins 17 and 17' being optionally slightly curved or "sprung" at 17'' for an anti-rattling effect) may be employed, as hereinafter shown, even in bumper organizations which do not require actual removal of pins or of quarter bumpers or terminal bumper sections, to facilitate a disengagement thereof.

In Figure 6, a bumper 14^b is shown as comprising an impact-receiving element 15^b which is integral with an intermediate element 16^b, an additional intermediate element 16^{b'} being terminally but releasably connected with the impact-receiving element 15^b. The mentioned intermediate elements may be secured to an attachment element 12^b by separate pivot pins or by connecting means including pins 17^b, 17^{b'} and a handling element or elements such as a step; one of the pins (as, pin 17^b or 17^{b'}) may be so elongated as to serve as a pivot upon withdrawal of the other pin; and/or the outer end of the intermediate element 16^{b'} and that of the impact-receiving element 15^b may be interconnected by a gravity-held or other cou-

pling element such as pin 20^b,—preferably upwardly terminating in a special head suitable for naked-hand engagement. This head may, for example, be of the general character suggested at 18^c in Figures 7 and 8; and it will be obvious that upon withdrawal of the coupling or pivot pin 20^b, the various bumper elements are free separately to move to releasing positions such as are suggested at 15^{b''} and 16^{b''},—even without withdrawal of either of the pins 17^b, 17^{b'}.

In the forms shown in Figure 7, a bumper 14^c is shown as comprising intermediate elements 16^c, 16^{c'}, both integral with an impacting-receiving element 15^c; and it is shown as secured to an attachment element 12^c by means of a single pivot pin 20^c, integral with a head 18^c,—optionally notched, as at 21^c, in such manner as to adapt the "step" head or handle of the same alternatively to be used, upon withdrawal, as a wrench. The bumper 14^c may be normally held against movement from its indicated position by, for example, locking or clamping thereto an intermediate bumper section 22^c. A terminal portion of the section referred to is shown as extending parallel with a portion of the impact-receiving element 15^c and as secured thereto by a gravity-held connecting element comprising a step head 23^c and downwardly extending legs 24^c and 25^c,—between which is shown a slot 26^c. Whether or not one of the elements 15^c, 22^c is so formed as to require to be slightly "sprung" (as, from a position such as that indicated by lines 22^{c'}, Figure 7) in the application of a gravity-held or other coupling or connecting element of the described character, and whether or not any catch is provided thereon, as conventionally suggested at 26^{c'} the inner surfaces of the legs 24^c, 25^c, defining the slot 26^c, may be upwardly slightly convergent,—in such manner as to provide a "wedge fit" upon the elements 15^c and 22^c; but the resulting engagements are not intended to be such as to preclude manual or other removal of this interlocking coupling element, to permit the quarter bumper 14^c to pivot upon the pin 20^c, or its equivalent, for a releasing effect.

In Figure 10, an intermediate impact-receiving bumper section 22^d is shown as carried by an intermediate bumper element 27^d which is secured to an attachment element 12^d,—the latter carrying also a quarter bumper 14^d. The intermediate section 27^d is shown as providing a concavity so formed as to permit the bumper 14^d to pivot upon one pin of a connecting element such as is shown in Figure 3 or upon a pin 20^d, moving into said concavity until limited by engagement with the intermediate bumper section 22^d; and the intermediate bumper section 16^{d'} is shown as including a pin-adapted boss 28^d, which may be normally engaged by

a clip 29^d in such manner as yieldably to retain the bumper 14^d in its inner or impact-withstanding position.

In Figure 11, a bumper 14^e, similar in general form to that in Figure 6, is shown as including an angle element 30^e, as pivoted at 20^e to an attachment element 12^e, and as adapted to be normally retained in its inner or impact-withstanding position either by resilient means or by a clip 29^e,—although capable of swinging outward, for disengagement subsequently to collision, to a position such as that suggested in dotted lines at 14^{e'}; and it will be obvious not only that pins 20^d and 20^e may have "step" or other special heads adapted to serve as handles for use in an upward withdrawal thereof but that an intermediate bumper section having the general character suggested at 22^d or at 22^e, if provided, may either be spaced from or be yieldably engaged by or be locked to a quarter bumper or terminal bumper section of any of the described types,—one alternative mode of use of an interlocking step element being suggested in Fig. 11 by the dotted lines 23^e.

In Figure 12, a bumper 14^f, supported through an attachment element 12^f (which may, in turn, be carried by an additional attachment element 12^{f'} serving as a support for a bumper section 22^f) is shown as normally held in impact-receiving position, from which it may be more freely moved outward than inward, by means including a compression spring 31^f,—this spring being shown as interposed between intermediate elements 12^{f'} and 16^f in such manner as to permit movement of bumper 14^f to such a position as is indicated by dotted lines 14^{f'}, for disengagement from an interlocked bumper 19^f of another machine, or the like.

In order to provide hidden but resiliently yielding means for the retention of a quarter bumper or terminal bumper section in its normal or impact-resisting position, it is suggested in Figures 13–15, inclusive, that a compression spring 31^g be so disposed upon a bolt 32^g (shown as extending through an attachment element 12^g and intermediate element 16^{g'} of a bumper or bumper section 14^g) as to draw the mentioned elements toward a normal or impact-resisting position of mutual engagement,—in which they may be yieldably retained by anti-rattling means such as a clip 29^g.

In forms last referred to, in which an automatic release may be effected by simply driving forward, the use of pins comprising "step" or other special heads may be regarded as optional,—as may be also the provision of any additional interconnection between an intermediate bumper section such as 22^f or 22^g and a quarter bumper or bumper section such as 14^f or 14^g; but Figures 12, 13, and 14 nevertheless suggest the use of connec-

tions comprising pins whose head may provide one or more steps such as are shown at 18^g, at 18^{g'} and 18^{g''},—the pins 17^f, 17^{f'} or 17^g, 17^{g'} serving to so interconnect intermediate bumper sections with quarter bumpers or bumper sections as to assure a reinforcing effect, although permitting a limited rotative movement thereof with reference to pin 20^f (or 20^g) regardless of any withdrawal or retention of a pin 20^{g'}. In the forms last referred to it will, in fact, be obvious that none of the mentioned pins need be withdrawn; and that, accordingly, none need be provided with "step" or other handles; but a withdrawal of pins may facilitate separation in difficult cases; and anyone who has ever observed a stout or elderly person trying to enter a rumble seat compartment will appreciate the advantages in an incidental provision of a plurality of steps at about the same level.

Although the foregoing description has included a variety of alternative forms, some of which forms are more complex than others, it should be understood not only that the simpler forms may be more extensively used, and that various features of the present invention may be independently employed, but also that numerous modifications, additional to those suggested herein, might easily be devised,—all without involving the slightest departure from the scope of the present invention.

I claim:

1. An easily-releasable bumper section comprising: an impact-receiving element and an attachment element respectively provided with parts engageable by connecting means; and connecting means therefor comprising a coupling element which is normally retained by gravity but is directly removable in apposition thereto, for releasably securing said impact-receiving element to said attachment element.

2. A bumper section as defined in claim 1 in which said coupling element is upwardly provided with a special head suitable for manual engagement to effect its direct withdrawal.

3. The bumper as defined in claim 1 in which said coupling element is provided with a head positioned to serve as a handle and shaped to serve as a step.

4. For use in attaching an element of a bumper to a supporting part: a coupling element provided with a head which is shaped to serve as a step.

5. A quarter bumper organization comprising: an impact-receiving element; an attachment element; and connecting means therefor comprising a step element.

6. An easily releasable bumper organization comprising: an impact-receiving element provided with means adapting it to pivotal support; an intermediate element normally

connected therewith; and a vertically slidable tool-obviating coupling element provided with a manually engageable head and so movable as to permit, at will, relative movement between said impact-receiving element and said intermediate element.

7. An easily-releasable bumper organization comprising: an impact-receiving element provided with means adapting it to be pivotally supported; an intermediate element also adapted to be pivotally supported; and a tool-obviating coupling element adapted to serve as a pivot therefor and so movable as to permit, at will, relative movement between said impact-receiving element and said intermediate element,—one of said elements including a manually engageable part normally serving as a step.

8. A bumper organization comprising: end sections; an intermediate section; and movable means comprising a step for normally connecting said sections together.

9. A bumper organization comprising: separate bumper sections; and coupling means therefor including substantially parallel pivot pins interconnected by a head and interposed between said sections to effect a mutual reinforcement thereof.

10. A bumper organization comprising: separate bumper sections; and coupling means therefor including substantially parallel pivot pins interconnected by a head and so interposed between said sections as to effect a mutual reinforcement thereof,—said head being adapted to serve both as a handle and as a step.

11. A bumper organization comprising: a terminal bumper section; means for pivotally so supporting parts thereof as to adapt the same to swing outward under impact, although normally retaining the same against inward movement; and an intermediate bumper section so concaved at the ends thereof as to permit movement of one of said bumper sections into a concavity thereof, for a releasing effect, in case the same has been interlocked.

In testimony whereof I affix my signature.
BERT RUSSELL.

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