Dec. 23, 1941. O. C. DURYEA 2,266,963

CAR CONSTRUCTION

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Fig. 1.

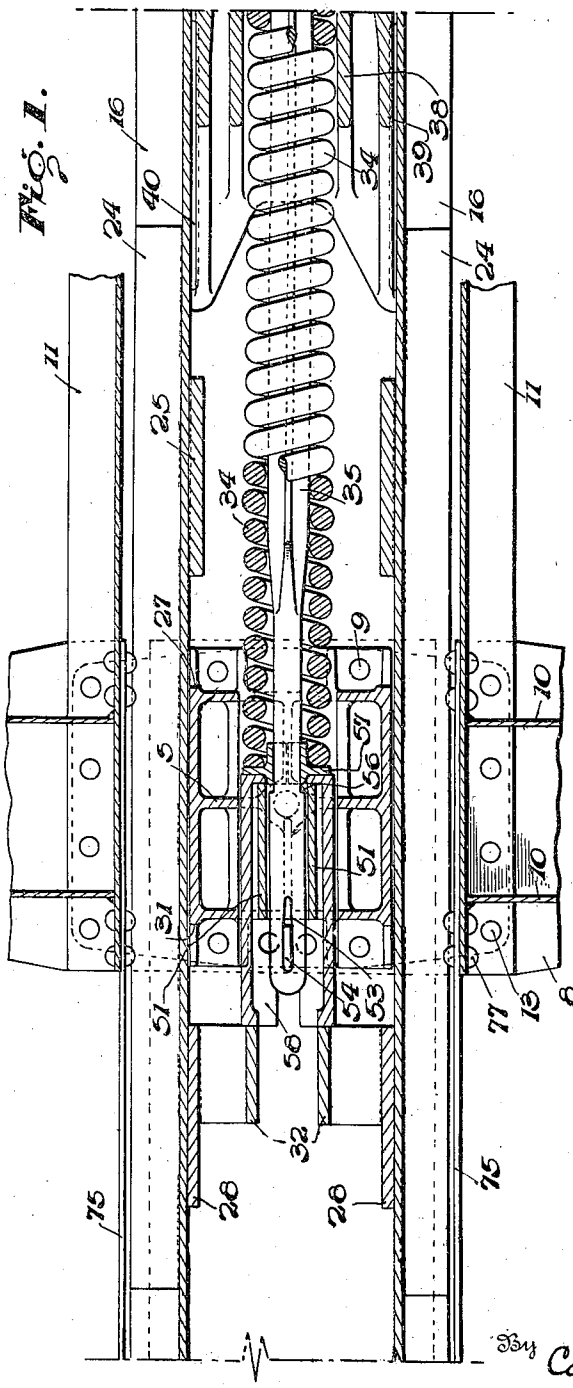

Fig. 3.

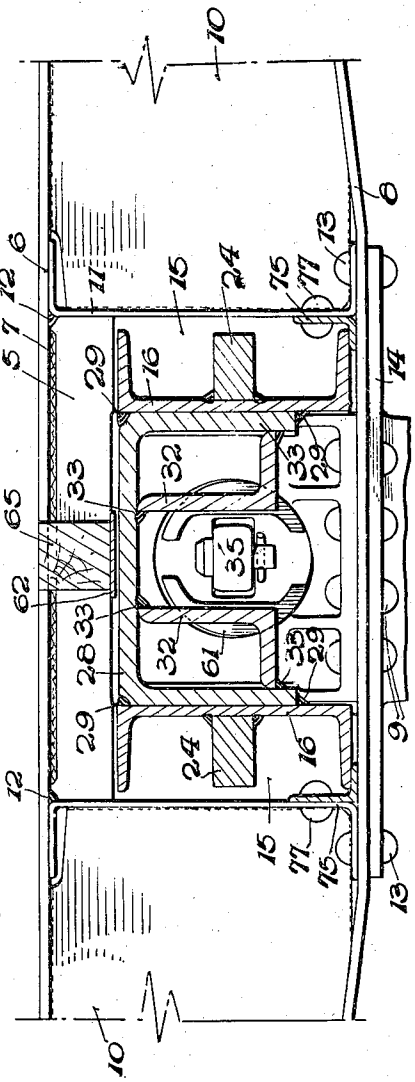

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FIG. 5.

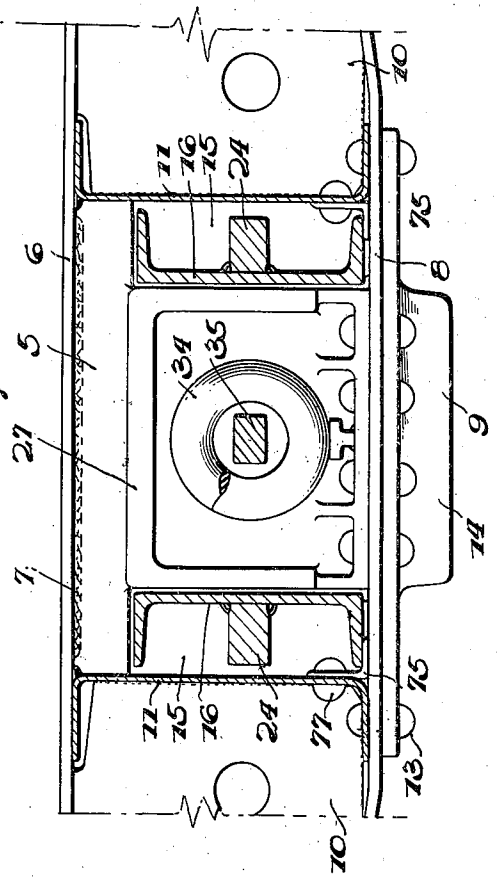


FIG. 6.

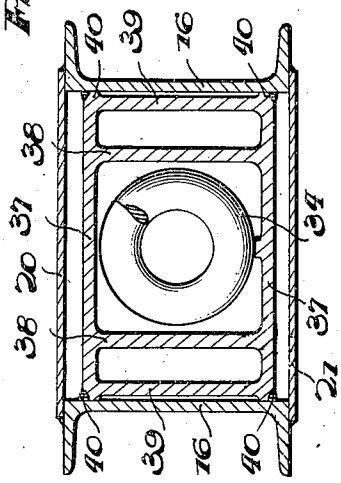


FIG. 7.

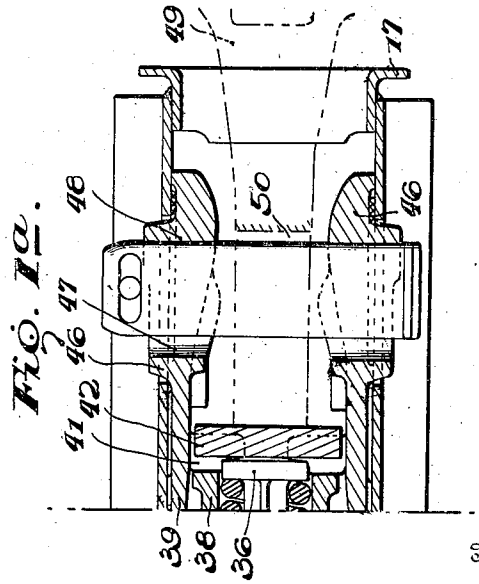
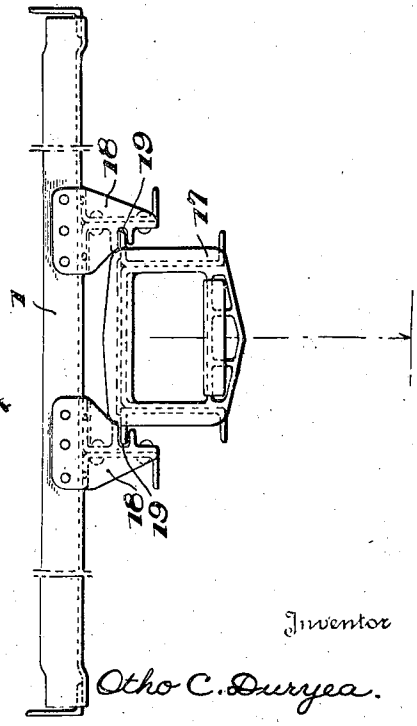


FIG. 8.



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CAR CONSTRUCTION

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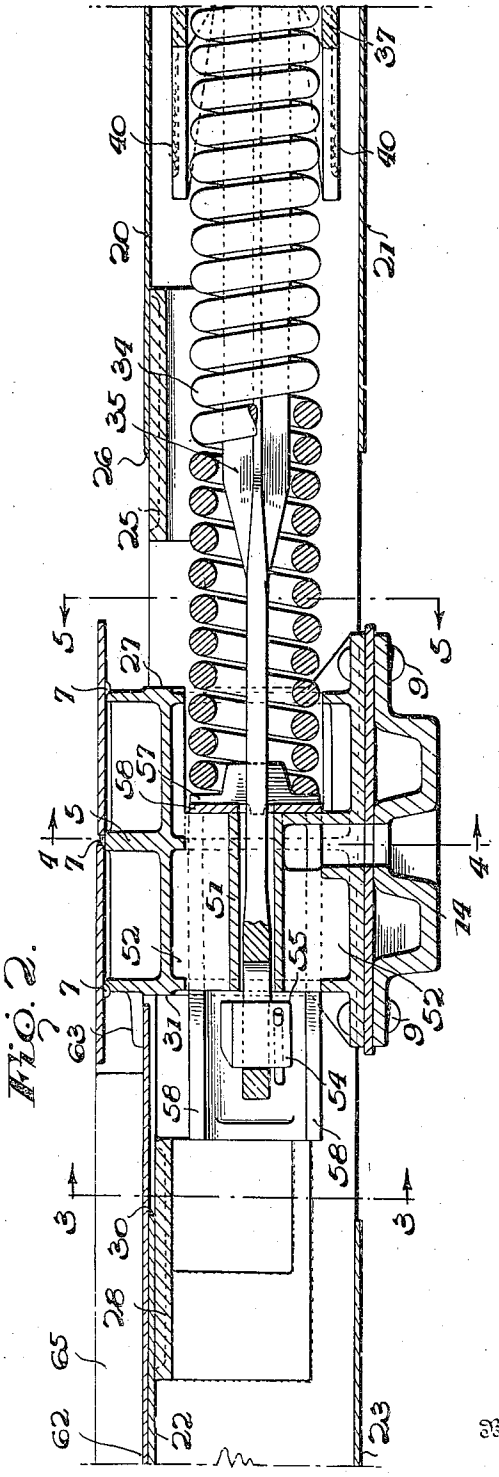

Fig. 2.

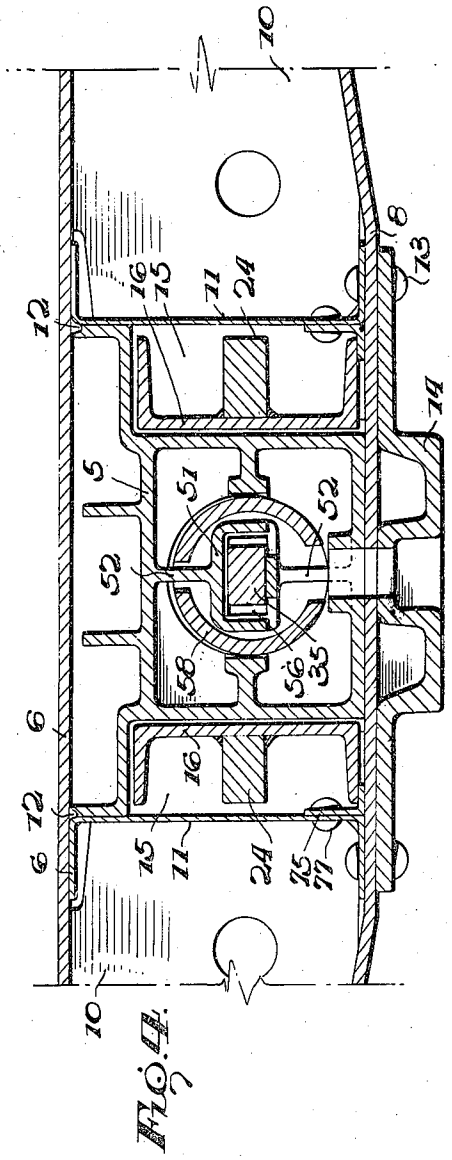

Fig. 4.

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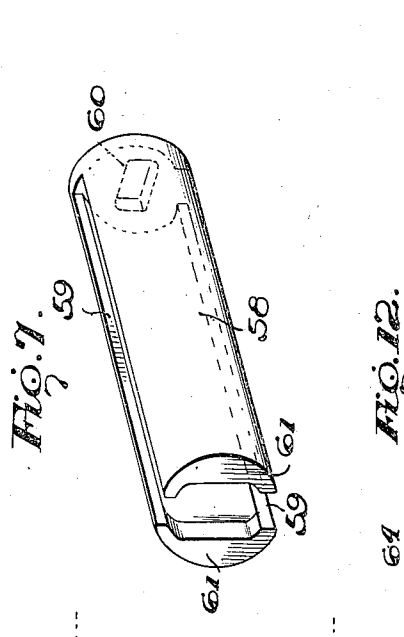

Fig. 1.

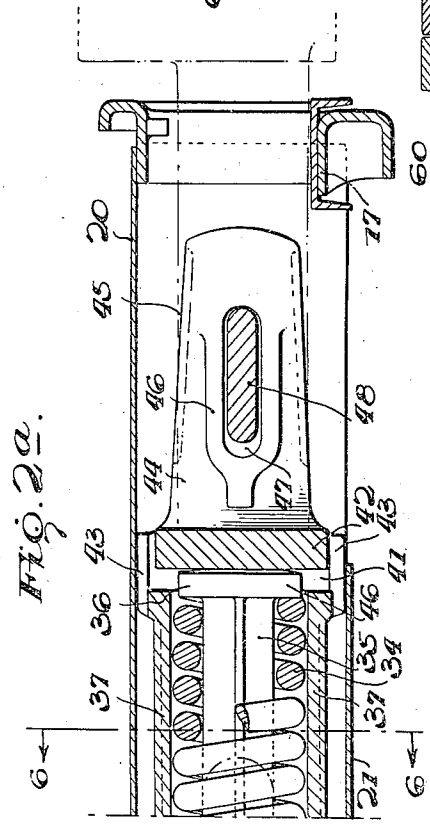

Fig. 2a.

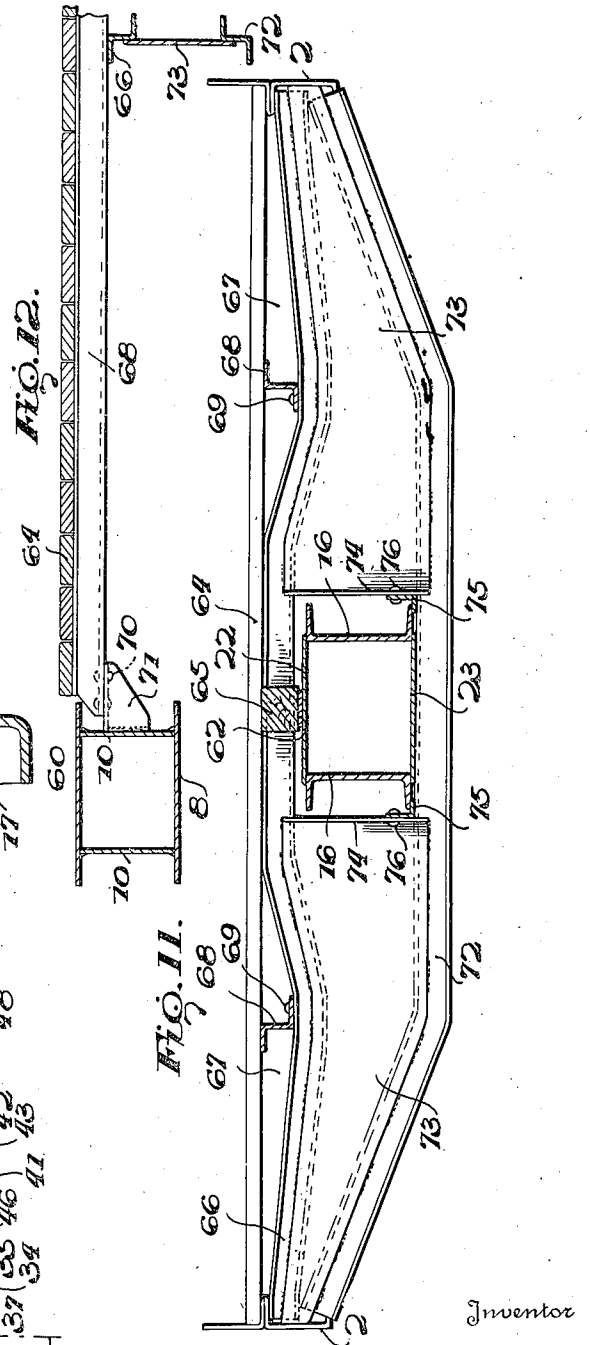

Fig. 11.

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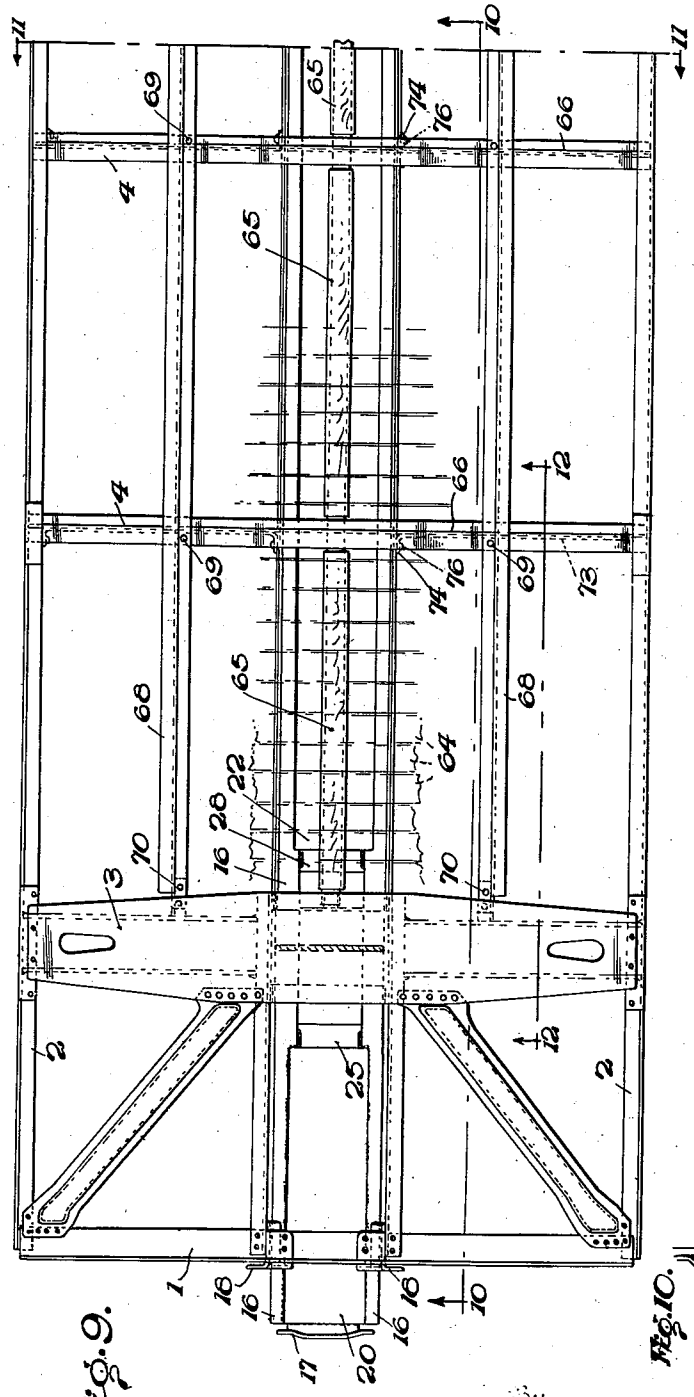

Fig. 9.

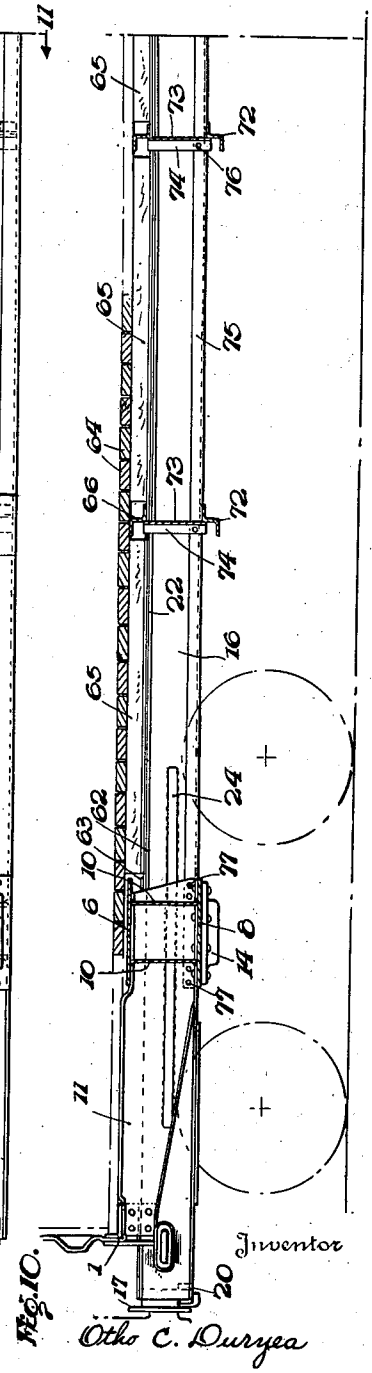

Fig. 10.

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UNITED STATES PATENT OFFICE

2,266,963

CAR CONSTRUCTION

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Application February 16, 1939, Serial No. 256,808

14 Claims. (Cl. 213—8)

This invention relates to railway car underframes of the Duryea type which provide long travel for cushioning draft and buffing forces, together with train slack of predetermined extent which is less than said long travel.

As disclosed, for example, in U. S. Patent No. 1,693,194 dated November 27, 1928, and as embodied in a form now in extensive use, the Duryea underframe embodies a draft and buffing column extending longitudinally throughout substantially the entire extent of the car body and passing slidably through alined openings in the body bolsters and crossbearers. Hence the crossbearers and bolsters must be provided with the required openings while at the same time they must have adequate strength to support the car body and the draft and buffing column, as well as adequate rigidity against forces acting longitudinally of the car. Generally relative movement between the column and car body is yieldingly resisted by resilient means interposed between the column and the body bolsters, but in many cases it is also desirable to provide friction between the draft and buffing column and the car body, which has the results not only of dissipating part of the energy of draft and buffing forces but also of providing a more gradual return of the draft and buffing column to its normal position. One manner in which this has been accomplished heretofore, as disclosed in the patent referred to above, is to support the floor of the car in part by means having frictional engagement with the draft and buffing column. This arrangement, however, increases the friction between the crossbearers and the column and tends to increase the longitudinal forces on the crossbearers, as well as to cause longitudinal forces on the floor of the car.

Various constructions have been proposed and used heretofore with such arrangements. In one construction, as exemplified by U. S. Patent No. 1,904,294 dated April 18, 1933, the crossbearers comprise flanged pressings which extend from side to side of the car with holes cut in the webs to provide for the passage of the draft and buffing column. These crossbearers are strengthened by center brace castings or lengths of angles riveted to the pressings at and around the openings, and the castings or angles also extend below the pressings to provide ears between which longitudinal tie angles are connected. In another construction, as exemplified by U. S. Patent No. 1,938,754, dated December 12, 1933, the crossbearers comprise flanged pressings which extend from each side toward the center of the car where they are connected by top and bottom tie bars extending above and below the draft and buffing column. Longitudinal tie angles are connected between each pair of adjacent crossbearers by means of gusset plates secured to the top tie bars, and other longitudinal tie angles extend below and are connected to the bottom tie bars.

One of the objects of the present invention is to provide a novel crossbearer construction which, while possessing adequate strength and rigidity, is at the same time simpler and of fewer parts, as well as less expensive in time, labor and materials required for construction, than crossbearers of types such as those referred to above.

Another object of the invention is to simplify the construction and to decrease the expense in time, labor and materials required for tying the crossbearers together in a longitudinal direction, as well as to reduce the number of parts required for this purpose.

A further object is to provide novel means combining the functions of tying the crossbearers together in a longitudinal direction and of guiding and supporting the draft and buffing column in its longitudinal movement.

Another object is to provide novel means for providing friction between the car body and column in a simple and effective yet inexpensive way while at the time time providing an additional longitudinal tie between the car bolsters.

Another object is to provide such friction without causing longitudinal forces to act on the car flooring.

A further object is to provide such friction while substantially eliminating longitudinal forces on the crossbearers heretofore caused thereby.

A still further object is to provide novel cushioning means interposed between the draft and buffing column and the car body for cushioning draft and buffing forces.

Other objects will appear hereinafter as the description proceeds.

One embodiment of the invention has been illustrated in the accompanying drawings but it is to be expressly understood that said drawings are for purposes of illustration only and are not to be construed as a definition of the limits of the invention, reference being had to the appended claims for this purpose.

In the drawings,

Figs. 1 and 1*a* together constitute a plan view in section of one end of the car underframe;

Figs. 2 and 2*a* together constitute a sectional view taken on the center line of Figs. 1 and 1*a*;

Fig. 3 is a section taken on the line 3—3 of Fig. 2;

Fig. 4 is a section taken on the line 4—4 of Fig. 2;

Fig. 5 is a section taken on the line 5—5 of Fig. 2;

Fig. 6 is a section taken on the line 6—6 of Fig. 2*a*;

Fig. 7 is a detail view illustrating a part of the cushioning mechanism;

Fig. 8 is an end view of the car underframe;

Fig. 9 is a plan view of one end of the car underframe;

Fig. 10 is a section taken on the line 10—10 of Fig. 9;

Fig. 11 is a section taken on the line 11—11 of Fig. 9, and

Fig. 12 is a section on the line 12—12 of Fig. 9.

The general arrangement of the car underframe may comprise the usual or any suitable combination of end and side sills, body bolsters, diagonal braces, and crossbearers intermediate the bolsters. In the form shown in Fig. 9, the underframe comprises an end sill 1, side sills 2, body bolsters one of which is indicated generally at 3, and one or more crossbearers intermediate the bolsters which are indicated generally at 4. Suitable bolster construction is shown in more detail in Figs. 1–5. As shown in these figures the bolster comprises a center brace casting 5, a top cover plate 6 extending between the side sills 2 and suitably connected to the center brace casting as by welding along the lines 7 (Fig. 2), and a bottom cover plate 8 extending between the side sills 2 beneath the center brace casting and secured to the latter in any suitable manner as by means of rivets 9. The top and bottom cover plates are connected by vertical webs or diaphragms 10 to form a hollow box-like structure as shown in cross section in Fig. 12. Flanged torque arms 11 extend outwardly from the bolster to the end sill 1, said torque arms being connected to the upper part of the center brace casting 5 by welding along the lines 12 (Fig. 4) and to the bottom cover plate by rivets 13. The rivets 9 and 13 also secure a suitable center plate 14 to the bolster. The webs or diaphragms 10 are welded to the cover plates 6 and 8 and their inner ends abut the torque arms 11 and are welded thereto. It is to be understood, however, that the construction thus far described constitutes no part per se of the present invention and that any other suitable construction may be substituted therefor.

As clearly shown in Fig. 4, the lower portion of the center brace casting 5 is of less width than the upper portion to provide bolster openings 15 between said lower portion and the torque arms 11. These openings 15, together with alined openings in the crossbearers as hereinafter described, permit the longitudinal movement therethrough of a draft and buffing column which extends substantially the length of the car body and comprises a pair of spaced, suitably interconnected channel members 16, 16, one extending through each of the openings 15. As shown, these channels are connected at their ends by a striking plate casting 17 (Figs. 1*a*, 2*a* and 8) and are guided adjacent their ends by guide plates 18 carried by the end sills 1 and having grooves or slots 19 in which the upper flanges of the channels 16 have sliding engagement. Intermediate the bolsters and the end sills, the channels 16 are further connected by top and bottom cover plates 20 and 21 (Figs. 2 and 2*a*) and between the bolsters they are connected by top and bottom cover plates 22 and 23. At the bolsters, however, the draft and buffing column is open at top and bottom so that the channels 16 slidably embrace the lower portions of the center brace castings as shown in Fig. 4. To provide additional strength and rigidity adjacent the bolsters, the channels 16 may be suitably strengthened as by bars 24 welded to the webs of the channels.

Suitable oversolid stops are provided to limit the maximum movement of the draft and buffing column relative to the bolsters. As shown in Figs. 1 and 2, the outer stop comprises a U-shaped member 25 the vertical legs of which extend within the channels 16, 16 and are preferably welded thereto and the top horizontal portion of which constitutes a further connection between the channels and is also welded to the top cover plate 20 as indicated at 26 in Fig. 2. The outer side of the center brace casting 5 is provided with a U-shaped striking face 27 as shown clearly in Fig. 5 which conforms to the shape of the stop member 25 and against which said stop member is adapted to engage to limit the maximum inward movement of the draft and buffing column. The inner stop comprises a similar U-shaped member 28 secured by welding at 29 to the webs of the channels 16 (Fig. 3) and at 30 to the top cover plate 22, the inner side of the center brace casting 5 being provided with a similar U-shaped striking face 31 adapted to be engaged by the stop 28 to limit the maximum outward movement of the draft and buffing column. Preferably the inner stop 28 is also adapted as hereinafter described to cooperate with the cushioning mechanism and to this end it is provided with angles 32 welded thereto at 33.

Yielding means preferably comprising both resilient and frictional elements are interposed between the car body and the draft and buffing column to cushion draft and buffing forces. As shown in Figs. 1, 1*a*, 2 and 2*a* these yielding means comprise a spring 34 extending outwardly from the bolster toward the end of the car and arranged to be compressed on both outward and inward movement of the draft and buffing column. A link 35 extends through the spring 34 and is provided at its outer end with a head 36 engaging and holding the outer end of the spring 34. The outer end portions of the spring and link are housed in and guided and supported by a casting welded to the draft and buffing column for transmitting draft and buffing forces from the coupler to said column. The upper and lower horizontal walls 37 and the inner vertical walls 38 of said casting form a housing and support for the spring 34. The upper and lower edges of the outer vertical walls 39 project into contact with and are welded at 40 to the channels 16. To provide greater weld length in a longitudinal direction, the walls 37 and 39 may be shaped to extend the weld lines 40 inwardly beyond the inner vertical walls 38 as shown in Figs. 1 and 2. As shown in Fig. 1*a* the outer vertical walls 39 also extend outwardly beyond the inner vertical walls 38 to provide a pocket 41 for a follower plate 42 which engages the head 36 of the link 35, said follower plate being retained in said pocket by lugs 43 (Fig. 2*a*). Outwardly of the follower pocket 41 the vertical walls 39 are continued to provide arms 44 welded to the channels 16 along their edges as shown at 45 and provided with ribs 46 extending through open-

ings in the channels 16 and defining openings 47 for a coupler key 48. A suitable coupler 49 is provided with an opening 50 through which the key 48 passes, the butt of the coupler engaging the follower plate 42.

Preferably the coupler 49 is connected to the draft and buffing column in such a manner as to provide a predetermined limited amount of train slack on buff but none on draft. The coupler is normally maintained in the position shown in Fig. 1a by the spring 34. On draft the coupler 49 pulls directly on the inner edge of the key 48, the outer edge of which is in engagement with the ribs 46 whereby the draft force is transmitted through the spring housing to the draft and buffing column without train slack. When the coupler 49 is subjected to a buffing force, however, it moves inwardly relative to the key 48 by reason of the fact that the opening 50 is of greater extent than the key 48, and thereafter the coupler and key together can move inwardly relative to the draft and buffing column by reason of the fact that the openings 47 are of greater extent than the key 48. The extent of this train slack movement of the coupler is limited by the engagement of the follower plate 42 with the ends of the walls 37 and 38, the spacing of the follower plate from these elements predetermining the train slack. As the follower plate 42 moves inwardly it engages and moves the head 36 of the link 35, thereby compressing the spring 34 to cushion the movement of the coupler.

As shown in Figs. 1, 2 and 4, the central portion of the center brace casting 5 is provided with walls 51 supported by vertical webs 52 and defining a substantially rectangular opening through which the link 35 passes. The inner end of the link has a slot 53 through which extends a key 54 adapted to engage the inner face of the bolster and thereby to prevent outward movement of the outer end of the spring 34. Preferably spring 34 is installed under compression in order to maintain the coupler key and coupler in the normal position shown in Fig. 1a, and to allow for wear the key 54 is initially spaced slightly from the inner face of the bolster as indicated at 55. For installation under compression, the link 35 is provided with shoulders 56 and the inner end of the spring bears against a two-part gag washer 57. The spring may be assembled on the link, compressed in a press, and held in compressed position by inserting gage between the shoulders 56 and the gag washer 57. After installation the first buffing force which compresses the spring also frees the gags which then drop out, leaving the parts in the position shown in the drawing.

Suitable follower means are provided for the inner end of the spring 34 which in the form shown comprise a follower casting 58 illustrated in Fig. 7. This casting is substantially cylindrical and is provided with longitudinal slots 59 whereby it may be passed through an opening in the bolster, surrounding the walls 51 with the slots 59 slidably embracing the vertical webs 52 as shown in Fig. 4. The head of the follower casting 58 is provided with an opening 60 for the passage of the link 35. The inner end of the casting 58 comprises striking surfaces 61 alined with and adapted to be engaged by suitable stop members secured to the draft and buffing column on the inner side of the bolster. Preferably these stop members are formed as part of the inner oversolid stop 28 and comprise the angles 32 above described.

The yielding cushioning means also includes friction means which, in the form shown (Figs. 2, 3, 9, 10 and 11), comprise a horizontal bar or plate 62 extending between the bolsters through the openings in the crossbearers and adapted to engage the top cover plate 22 of the draft and buffing column, said bar also constituting a central floor support whereby the weight of the car body and its lading is effective to maintain frictional engagement between said bar or plate and column. As shown in Fig. 2, the ends of the bar 62 are suitably connected to the bolsters by welding them to lugs 63 which extend inwardly from the bolsters. Secured in any suitable manner to the car floor, which is indicated at 64, are longitudinal stringers 65 which act as filler blocks to transmit the weight of the car body and its lading to the bar 62. As shown in Figs. 9 and 10, said stringers 65 are in lengths which extend between each pair of adjacent crossbearers and between the end crossbearers and the adjacent bolsters. It will be understood that any suitable number of these stringers can be employed.

The construction of the crossbearers is illustrated in Figs. 9, 10 and 11. They comprise top bars 66, here shown as Z-bars, which extend transversely of the car between the end sills 2 above the draft and buffing column. The central portions of said bars 66 support the car flooring 64, but the portions of said bars intermediate the center and sides of the car are depressed at 67 and intermediate floor supports 68, also here shown as Z-bars, extend longitudinally of the car over the depressed portions 67. The bars 66 preferably are suitably secured to the crossbearers as by means of rivets 69, and the ends of said bars are suitably secured to the bolsters as by riveting them at 70 (Fig. 12) to lugs 71, whereby said bars also constitute longitudinal tie members for the underframe. The crossbearers also comprise bottom bars 72, here shown as Z-bars, which extend between the end sills 2 beneath the draft and buffing column. Vertical webs or diaphragms 73 connect the top bars 66 and bottom bars 72, said webs 73 being preferably welded to said bars and terminating in flanges 74 adjacent the center of the car. Hence the openings in the crossbearers for the draft and buffing column are formed by the bars 66 and 72 and by the flanges 74 of the web plates 73.

In order to avoid subjecting the crossbearers to longitudinal forces due to the movement of the draft and buffing column, means are provided to support and guide the column through the crossbearers whereby such longitudinal forces are substantially eliminated and at the same time additional friction is obtained to aid in yieldingly resisting the movement of the column. To these ends the column is supported by and slides on members which extend continuously between the bolsters and are in turn supported by the crossbearers. Preferably these members comprise angles 75 extending through the lower corners of the openings in the crossbearers suitably secured to the crossbearers as by riveting them at 76 to the flanges 74. The angles 75 preferably extend continuously between and are connected to the bolsters and, as shown in Figures 1, 3, 4 and 5, they may be extended through the bolster openings to the outer face of the bolster and connected to the vertical webs of the torque arms 11 by means of rivets 77. Hence the angles 75 not only support and

guide the draft and buffing column throughout its entire length intermediate the bolsters, but also constitute tie members connecting the bolsters and crossbearers in a longitudinal direction. If desired, the bar **62** may constitute a further longitudinal tie member by suitably connecting it to the crossbearers.

The operation will be understood from the foregoing description and may be briefly summarized as follows:—

When a draft force is applied to the coupler **49**, the outward movement of the coupler is transmitted without train slack to the draft and buffing column, causing it to move outwardly through the bolsters and crossbearers. The outer end of the spring **34** is held against movement by the head **36** of the link **35**, the key **54** engaging the inner face of the center brace casting. The stops **32** engage the faces **61** of the follower casting **58**, moving said follower casting outwardly with the column and thereby compressing the spring **34** against the head of the link and resiliently resisting the movement of the draft and buffing column. At the same time the movement of said column is frictionally resisted by the friction between the bar **62** and the top cover plate **22** of the draft and buffing column, and by friction between the column and the angles **75**, which frictional engagements are maintained by the weight of the car floor and its lading. If the draft force is great enough, the outward movement of the draft and buffing column will be limited by engagement of the inner oversolid stop **28** with the inner face **31** of the center brace casting. Normally, however, the energy of the draft force will be absorbed and dissipated before this engagement takes place, whereupon the column will be returned to its normal position by expansion of the spring **34**, this return movement being gradual due to the friction between the column and the bar **62** and angles **75**.

When a buffing force is applied to the coupler **49**, said coupler first moves inwardly relative to the draft and buffing column throughout its train slack travel, compressing the spring due to the engagement of the follower plate **42** with the link head **36** as above described, the inner end of the spring being supported by the center brace casting and the link **35** sliding through the bolster. Further inward movement of the coupler causes inward movement of the draft and buffing column due to the engagement of the follower plate **42** with the walls **37** and **38** of the spring housing, as well as further compression of the spring **34**. The inward movement of the column is also resisted frictionally by the friction between the bar **62** and the top cover plate **22** of the draft and buffing column, and by the friction between said column and the angles **75**. If the buffing force is great enough, maximum inward movement of the column will be limited by engagement of the outer oversolid stop **25** with the outer face **27** of the center brace casting. Normally, however, the energy of the buffing force will be absorbed and dissipated before this engagement takes place whereupon the column will be returned to normal position by expansion of the spring **34**, the return movement being gradual due to the friction between the column and the bar **62** and angles **75**.

Since the draft and buffing column is supported by the continuous angles **75**, any longitudinal forces due to the friction of the column sliding on said angles will be absorbed by the angles themselves without substantial longitudinal forces on the crossbearers. At the same time the crossbearers are tied together in a longitudinal direction by the angles **75**, as well as by the floor supports **68** and, if desired, by the bar **62**. Furthermore, since there is no relative movement between the bar **62** and the stringers **65**, the frictional resistance to movement of the column is obtained without subjecting the car flooring to longitudinal forces.

It will be seen that this construction of the cushioning mechanism, the crossbearer construction, and the longitudinal supports and tie members provides a strong, rigid assembly which operates effectively to produce the desired results of cushioning the movement of the draft and buffing column both frictionally and resiliently while reducing the forces to which the various parts are subjected in service. At the same time these results are accomplished with a simple, readily assembled structure having fewer parts than constructions heretofore employed and enabling substantial reductions in both cost and weight.

While only one embodiment of the invention has been described and illustrated in the drawings, it will be understood that the invention is not restricted to this embodiment and it will now be apparent to those skilled in the art that various changes may be made in the form, details of construction and arrangement of the parts without departing from the spirit of the invention. Reference should therefore be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a load-supporting draft and buffing column movable longitudinally of the car through said openings, and yielding means for resisting relative movement between said column and car body, said yielding means comprising resilient means connected between said column and bolsters and friction means engaging and supporting said column and extending continuously through a plurality of crossbearer openings, said friction means being interposed between said column and crossbearers.

2. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for resisting relative movement between said column and car body, said yielding means comprising resilient means connected between said column and bolsters and friction means engaging the top and bottom of said column and extending continuously through a plurality of crossbearer openings, said friction means being interposed between said column and said crossbearers, and load-supporting means bearing on the top friction means.

3. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for resisting relative movement between said column and car body, said yielding means comprising resilient means connected between said column and bolsters and

friction means comprising upper and lower members slidably engaging said column, said members extending continuously between the bolsters through the crossbearer openings and being interposed between the column and the crossbearers, and load-supporting means bearing on said upper member.

4. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings and supporting the load of the car floor, yielding means for resisting relative movement between said column and bolsters, and friction members extending continuously through a plurality of said crossbearer openings and secured to said crossbearers, said members being disposed in the lower corners of said openings and having horizontal surfaces for frictionally guiding said column.

5. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings and supporting the load of the car floor, yielding means for resisting relative movement between said column and bolsters, and tie members extending continuously between the bolsters through the openings in said crossbearers and secured to said crossbearers and at their ends to said bolsters, said tie members being disposed in the lower corners of said openings and having horizontal surfaces for frictionally guiding and supporting said column.

6. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings and supporting the load of the car floor, said crossbearers comprising transverse members above and below said column and vertical webs connecting said members, the inner ends of said webs having flanges defining the sides of said openings, and friction members extending continuously through a plurality of crossbearer openings and frictionally engaging and supporting said column, said members being secured to said flanges and also secured at their ends to said bolsters.

7. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings and supporting the load of the car floor, said crossbearers comprising transverse members above and below said column and vertical webs connecting said members, the inner ends of said webs having flanges defining the sides of said openings, and tie members extending continuously through a plurality of crossbearer openings and secured to said flanges, said tie members having horizontal surfaces for guiding and supporting said column.

8. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for resisting relative movement between said column and bolsters, a central floor support extending between said bolsters through the openings in said crossbearers and adapted to engage the top of said column and separate it from said crossbearers, and floor supporting means carried by the car body between said crossbearers and bearing on said floor support.

9. In a railway car, the combination of bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for registering relative movement between said column and bolsters, and a horizontal wear plate extending through the openings in said crossbearers and secured at its opposite ends to said bolsters, the car body being provided intermediate the crossbearers with depending floor supporting means engaging said wear plate to maintain it in frictional engagement with the top of said column.

10. In a railway car, the combination of bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for resisting relative movement between said column and bolsters, a central floor support extending between said bolsters through the openings in said crossbearers and adapted to engage the top of said column, floor supporting means carried by the car body between said crossbearers and bearing on said floor support, and floor supports comprising tie members extending between said bolsters over the tops of said crossbearers intermediate the center and the sides of the car.

11. In a railway car, the combination of bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for resisting relative movement between said column and bolsters, said crossbearers extending transversely of the car above and below said column and their top surfaces being depressed intermediate the center and sides of the car, a central floor support extending through the openings in said bolsters and adapted to engage the top of said column, floor supporting filler means carried by the car body intermediate said crossbearers and bearing on said floor support, and floor supports extending longitudinally of the car over said depressed portions.

12. In a railway car, the combination of bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for resisting relative movement between said column and bolsters, a central floor support extending between said bolsters through the openings in said crossbearers and adapted to engage frictionally the top of said column, floor supporting means carried by the car body between said crossbearers and bearing

on said floor support, and tie members extending continuously through a plurality of said crossbearer openings and secured to said crossbearers, said tie members being disposed in the lower corners of said openings and having horizontal surfaces for frictionally guiding said column.

13. In a railway car, the combination of bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for resisting relative movement between said column and bolsters, a central floor support extending between said bolsters through the openings in said crossbearers and adapted to engage the top of said column, floor supporting means carried by the car body between said crossbearers and bearing on said floor support, and tie members extending continuously between said bolsters through the openings in said crossbearers and secured to said crossbearers and at their ends to said bolsters, said tie members being disposed in the corners of said openings and having horizontal surfaces for guiding said column.

14. In a railway car, the combination of body bolsters adjacent the ends of the car, a plurality of crossbearers intermediate said bolsters, said bolsters and crossbearers having centrally disposed alined openings, a draft and buffing column movable longitudinally of the car through said openings, yielding means for resisting relative movement between said column and bolsters, said crossbearers comprising transverse members above and below said column and vertical webs connecting said members, the inner ends of said webs having flanges defining the sides of said openings, tie members extending continuously between the bolsters through said openings and secured to said flanges and at their ends to said bolsters, a central floor support extending between said bolsters through the openings in said crossbearers and adapted to engage the top of said column, and floor supporting means carried by the car body between said crossbearers and bearing on said floor support.

OTHO C. DURYEA.