Sept. 17, 1935. R. C. KEPNER 2,014,738

RAILWAY CAR CONSTRUCTION

Filed May 9, 1934 2 Sheets-Sheet 1

Fig. 1.

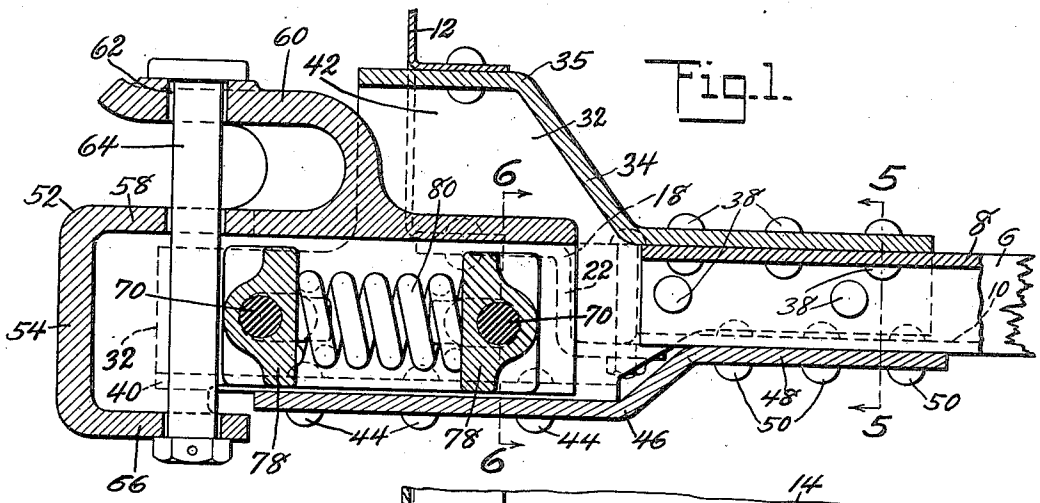

Fig. 2.

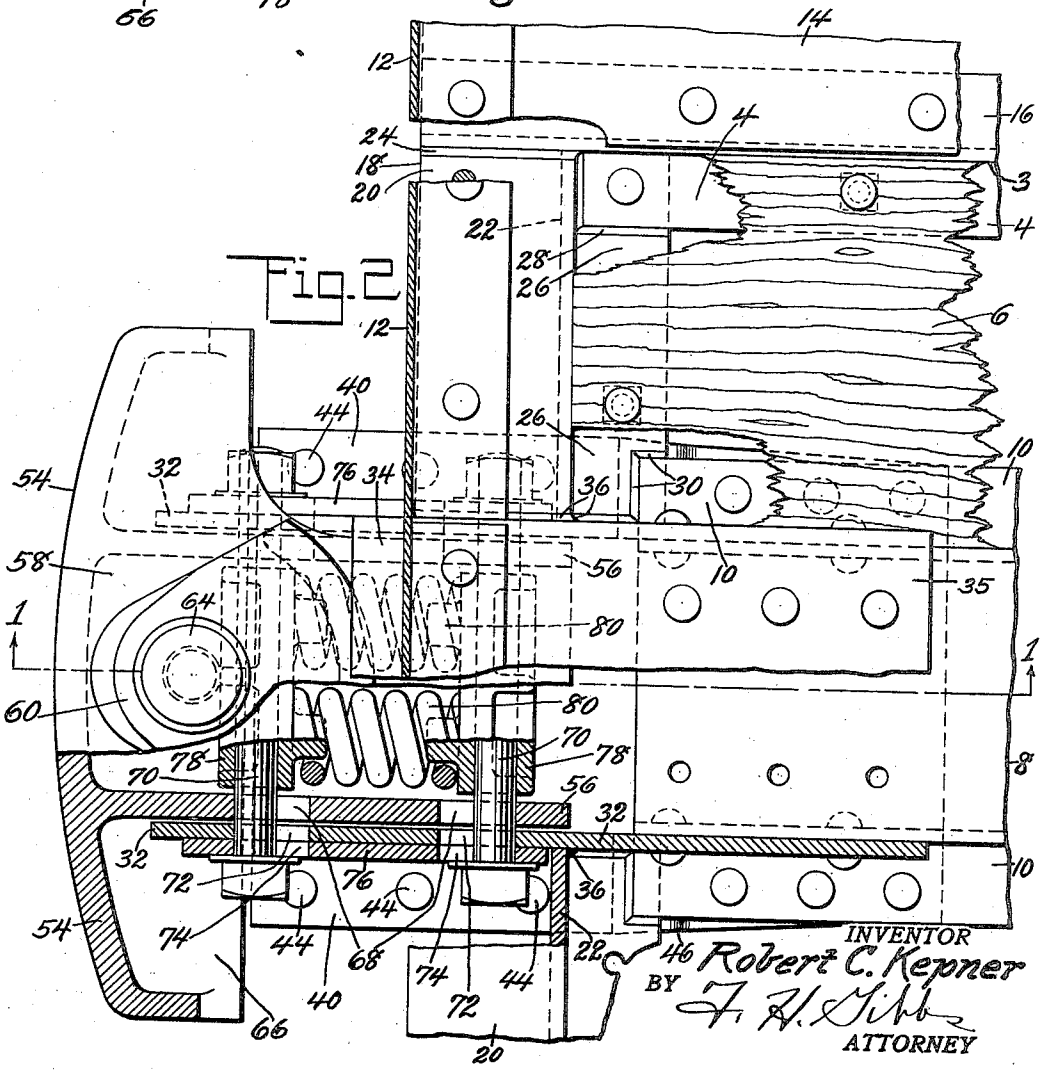

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Fig. 3.

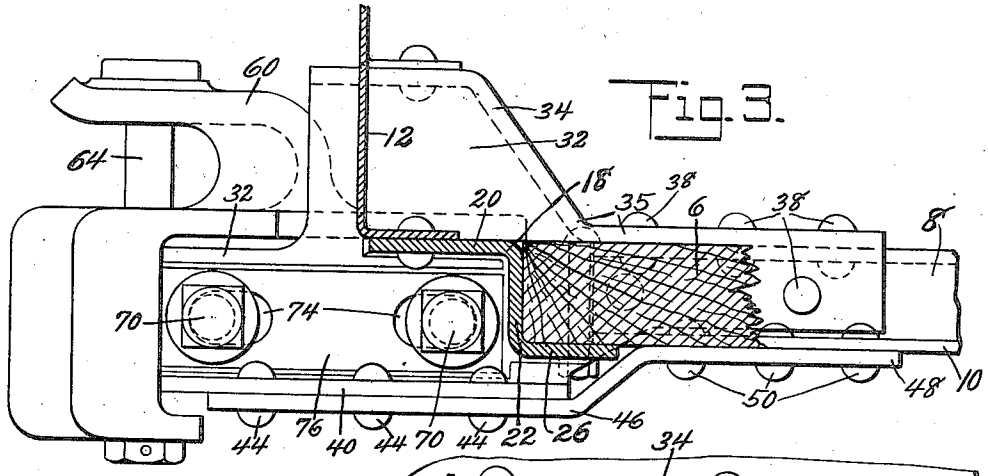


Fig. 5.

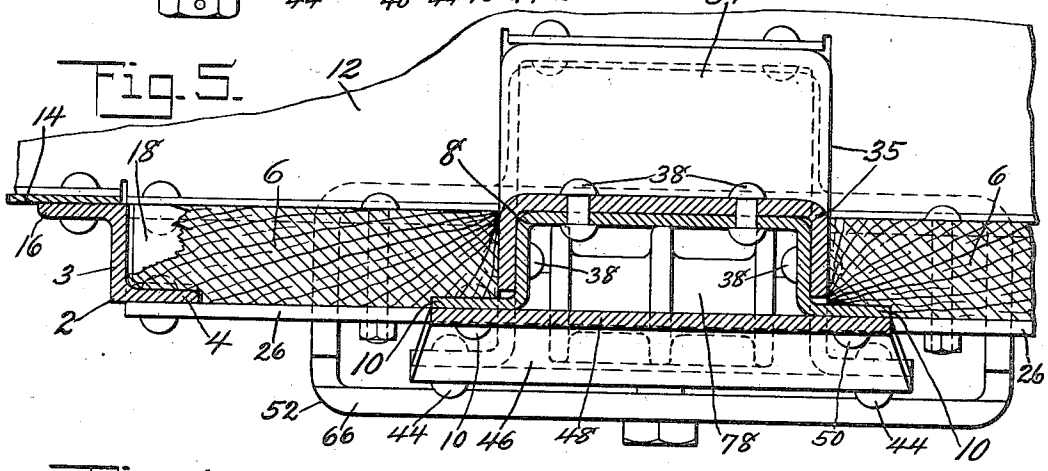


Fig. 4.

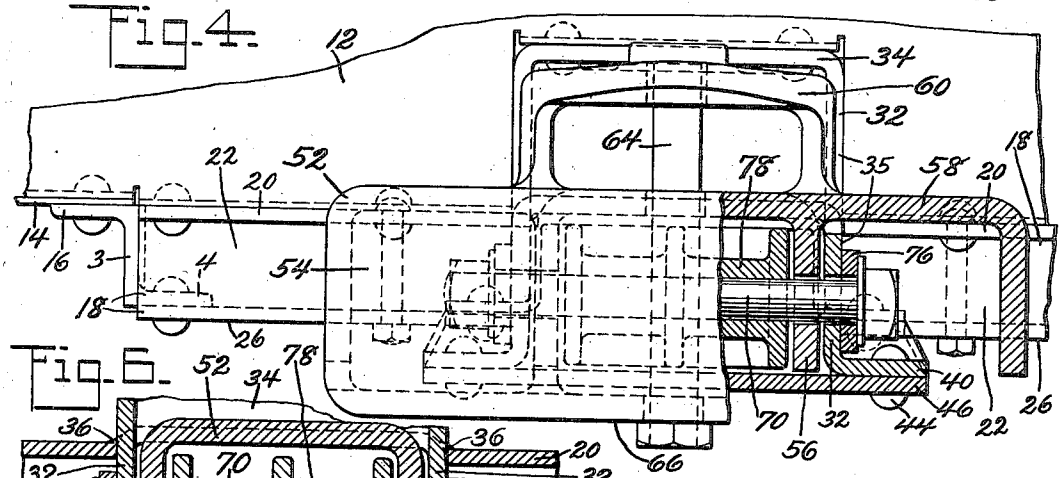
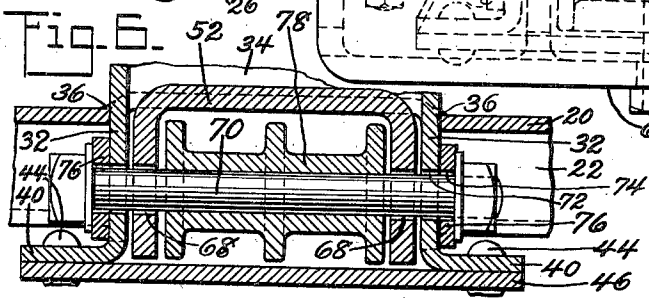


Fig. 6.



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UNITED STATES PATENT OFFICE

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RAILWAY CAR CONSTRUCTION

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Application May 9, 1934, Serial No. 724,641

15 Claims. (Cl. 105—364)

This invention relates generally to improvements in railway car construction and has particular reference to underframe constructions for mine cars.

One object of the present invention is the provision of a new and improved end construction for the underframes of mine cars.

Another object of this invention is the provision of a simple, efficient and relatively inexpensive means, especially adapted for mine cars for effectively cushioning shocks under buff and draft and wherein provision is made for coupling cars.

A still further object of this invention is the provision of a mine car provided with cushioning means that may be applied as a unit to either new or old car structures and which will form an effective end straightening member.

Other objects and advantages of this invention will be apparent from the following description taken in conjunction with the accompanying drawings in which

Figure 1 is a sectional view through one end portion of a mine car, the view being taken on the line 1—1, Fig. 2;

Fig. 2 is a fragmentary top plan view at one end portion of the car, certain parts being shown in section and other parts being broken away;

Fig. 3 is a view in side elevation of the combined bumper and coupling means forming a part of the present invention, said means being shown applied to a mine car the parts of which are shown in section;

Fig. 4 is a front elevation at one end portion of a mine car, certain parts being broken away to disclose other parts in section;

Fig. 5 is a sectional view on the line 5—5, Fig. 1, and

Fig. 6 is a sectional view on the line 6—6, Fig. 1.

Referring now more particularly to the drawings in which similar characters of reference designate similar parts in the several views, the mine car of the present invention comprises an underframe including side sills 2, Z-shaped in section as shown more clearly in Figs. 4 and 5, the webs 3 of said sills being vertically arranged in order to dispose the lower flanges 4 horizontally whereby they serve as supporting elements for wood planks 6 extending between said side sills and a longitudinally extending buffer beam or "backbone" 8 and forming a central lading supporting bottom or floor portion. The buffer beam 8 is an inverted flange U section (see Fig. 5) and planks 6 rest upon the flanges 10 thereof.

The car shown also includes side floor portions comprising metal plates 14 secured to the upper flanges 16 of the side sills. As is usual the car body includes side and end walls of which a portion 12 of an end wall is indicated in the drawings. As thus far described, the construction is more or less conventional.

Adjacent the ends of the car the horizontal flanges 4 of the side sills are removed and Z-shaped end sill sections 18 abut the webs 3 of the side sills and have their upper flanges 20 and webs 22 welded to the side sills as shown at 24; the lower flanges 26 of the end sill sections underlying the flanges 4 of the side sills and being welded thereto as at 28. In practice the car of the present invention includes a pair of end sill sections at each end of the car, each section extending from a side sill toward the longitudinal center line of the car. Inasmuch as the sections are identical and are similarly connected a description of one will suffice for both. Referring now to the end sill section and the construction shown in Fig. 2 it can be seen that the end sill section 18 extends toward the longitudinal center line of the car and its lower flange 26 underlies and is welded as at 30 to the flange 10 of the backbone 8, while the web 22 and upper flange 20 of said end sill section abuts the side wall 32 of the upper portion or element 34 of a housing member 35 and is welded thereto as shown at 36 (see Figs. 2 and 6). As shown, the rear end portion of the member 35 is substantially U-shaped in section and is fitted over the buffer beam 8 and is secured to the latter by fasteners 38 (see Fig. 5). Forwardly of the buffer beam 8 the side walls 32 of the coupler upper housing member 34 are provided with out-turned flanges 40 (see Fig. 6) and said forward portion is enlarged as shown in Fig. 1 to provide an outwardly opening pocket 42. The side walls 32 of the member 34 are reduced in height and project forwardly beyond the pocket 42 as shown clearly in Figs. 1 and 2.

Secured to the flanges 40 by fasteners 44 is a tie plate 46, the rear end portion of which is upwardly offset as at 48 and extends between and is secured by fasteners 50 to the flanges 10 of the buffer beam 8. From the description just given it can be seen that the members 34 and 46 define a housing. The present invention includes a combined buffer and drawhead element indicated generally at 52, supported for sliding movement in the beforementioned housing in a manner presently to be described, said combined buffer and drawhead element comprising an arcuate-shaped buffing face 54 and a stem extending rearwardly therefrom and formed of spaced walls 56. The combined buffer and drawhead element also in-

cludes an upper surface 58 formed integral with the walls 56 and having an integral drawhead 60 rising upwardly therefrom, said drawhead being provided with an aperture 62 through which a coupling pin 64 extends, said pin also extending through an aperture in the upper surface 58 and through an aperture in an inturned flange 66 extending rearwardly from the buffing face 54.

The walls 56 of the combined buffer and drawhead element 52 are provided with spaced pairs of elongated openings 68 through which pins 70 extend, these pins also extending through elongated openings 72 and 74 formed in the walls 32 of the housing member 34 and in wear plates 76 respectively, said wear plates being arranged immediately adjacent and resting against the walls 32 as clearly shown in Figs. 2, 4 and 6. The pins 70 carry spring seat elements 78 which support a pair of springs 80 as shown more clearly in Fig. 2. As will be apparent from the drawings the spring seat elements 78 are loosely journaled on the pin 70.

It is apparent that the shock absorbing unit may be and preferably is assembled and applied either to the car while under construction or to existing cars by simply burning away by means of a torch or other suitable appliance the necessary parts of the ends and backbone or buffer beam. The unit comprises the housing 35 together with its associated shock absorbing and coupling mechanism. The bottom plate 46 may be attached to, and become a part of, the unit or be applied after the main unit has been attached to the car.

In service it will be apparent that an adjacent car may be coupled to the car shown in the drawings by the coupling pin 64, use being made of a suitable coupling link. In draft the combined buffer and drawhead element 52 will be slidable longitudinally of the housing 34, the springs 80 being under compression because of the spring seat elements 78, each thereof connected as a follower. In draft the forward pin 70 will go solid at one end of the slots 72 and 74 as will be obvious. In buff, with shock exerted against the buffer face 54 it can be seen that the rear pin 70 will go solid against the ends of slots 72 and 74 and the springs 80 will be compressed.

In the present construction it will be apparent that the end construction of the car of the present invention includes spaced end sill members which are connected to side sills and to parts of a bumper and drawbar arrangement, this providing an extremely strong and durable construction.

The drawings herein illustrate one embodiment of the invention but it is to be understood that they are for illustrative purposes only and various changes in the form and proportions of the construction may be made within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. In a mine car, an underframe comprising side sills, a longitudinally extending buffer beam intermediate the side sills, a bumper housing secured to the end portion of said buffer beam and projecting therefrom, and end sill sections on opposite sides of the buffer beam and extending between the latter and the side sills and connected thereto.

2. In a railway car, an underframe comprising side sills, a longitudinally extending buffer beam intermediate the side sills and provided at its end portion with a bumper housing member, and an end sill to which the buffer beam is connected, said end sill comprising a part of said bumper housing member and end sill sections on opposite sides of said bumper housing member and extending therefrom to the side sills and welded to the side sills and the bumper housing member.

3. In a railway car, an underframe comprising side sills, a longitudinally extending metal buffer beam intermediate the side sills and provided at its end portion with a bumper housing member, and an end sill comprising members on opposite sides of the buffer beam and extending from the buffer beam to the side sills and welded to the latter and to the buffer beam and bumper housing member.

4. In a railway car, an underframe comprising Z-shaped side sills, a longitudinal metal buffer beam intermediate the side sills, the latter at their end portions having a portion of the lower flange removed, a bumper housing secured to the end portion of said buffer beam and projecting therefrom and an end sill including a portion of said bumper housing and Z-shaped members extending therefrom in opposite directions, the end portions of said Z-shaped sections abutting the webs of the side sills and being welded thereto and the opposite end portions of said sections being welded to said bumper housing and buffer beam.

5. In a mine car, an underframe comprising side sills, a longitudinally extending metal buffer beam intermediate the side sills and including a two-part bumper housing, one of said parts resting on the buffer beam at its end portion and projecting therebeyond and having a forwardly opening pocket, while the other part of said bumper housing constitutes a bottom closure for the pocket and is secured to the lower surface of said buffer beam, and end sill sections welded to the buffer beam and bumper housing and projecting therefrom to the side sills and welded to the latter.

6. In a mine car, an underframe comprising side sills, a longitudinally extending metal buffer beam intermediate the side sills and including a two-part bumper housing, one of said parts resting on the buffer beam at its end portion and projecting therebeyond and having a forwardly opening pocket, while the other part of said bumper housing constitutes a bottom closure for the pocket and is secured to the lower surface of said buffer beam, and end sill sections welded to the buffer beam and bumper housing whereby said housing constitutes part of the end sill, said sections projecting from the bumper housing to the side sills and being welded to the latter.

7. An end construction for mine cars comprising side sills, a longitudinally extending metal buffer beam intermediate the side sills and having its end portion provided with a bumper housing projecting beyond the end of the car, an end sill including a part of said bumper housing and rigid elements welded to opposite sides of the buffer beam and bumper housing and extending towards the sides of the car into engagement with the side sills and welded to the latter, said bumper housing having its projecting end portions formed to support pins in a horizontal plane, a bumper element slidably mounted in the bumper housing, and spring means interposed between said pins and adapted to resist movements of the bumper.

8. In a mine car, an underframe comprising side sills, a longitudinally extending buffer beam intermediate the side sills, and an end sill extending between the side sills and connected thereto and to the buffer beam, said end sill having a part thereof formed to constitute a

bumper housing secured to and overlapping the buffer beam.

9. In a mine car, an underframe comprising side sills, a longitudinally extending buffer beam intermediate the side sills, and an end sill extending between the side sills and connected thereto and to the buffer beam, said end sill having a part thereof formed to constitute a bumper housing secured to the buffer beam and overlapping the upper and lower surfaces thereof.

10. A shock absorbing unit adapted for attachment in a mine car having end sills and a buffer beam, said unit comprising a housing member substantially channel shape in cross section having a rear portion for the attachment of the buffer beam, side portions for the attachment of end sills and a forward portion carrying a combined spring draft and buffer mechanism.

11. A shock absorbing unit adapted for attachment in a mine car having end sills and a buffer beam, said unit comprising a housing member substantially channel shape in cross section having a rear portion for the attachment of the buffer beam, side portions for the attachment of end sills, a forward portion carrying a combined spring draft and buffer mechanism, and a bottom cover plate attached to said forward portion and extending rearwardly for attachment to the car structure.

12. A shock absorbing unit adapted for attachment in a mine car having end sills, and a buffer beam, said unit comprising a housing member substantially channel shape in cross section having a rear portion for the attachment of the buffer beam, side portions for the attachment of the end sills, and an enlarged forward portion carrying a combined spring draft and buffer mechanism.

13. In a mine car having side sills and a buffer beam, an end sill to which the buffer beam is connected, the combination of a shock absorbing unit comprising a housing member substantially channel shape in cross section and having a rear portion for attachment to the buffer beam, side portions for attachment to the end sill and a forward portion adapted to carry a combined spring draft and buffer mechanism.

14. In a mine car comprising side sills, a buffer beam, an end sill to which the buffer beam is connected, the combination of a shock absorbing unit forming a part of the end sill and comprising a housing member substantially channel shape in cross section with a rear portion lapping and attached to the buffer beam, side portions attached to the end sill, a forward portion adapted to carry a combined spring draft and bumper mechanism and a bottom cover plate attached to said forward portion and extending rearwardly for attachment to the buffer beam.

15. In a mine car, side sills, a buffer beam, and an end sill to which the buffer beam is connected, said end sill including a shock absorbing unit comprising a housing member substantially channel shape in cross section provided with a rear portion for attachement to the buffer beam and a forward portion carrying a combined spring draft and buffer mechanism, and end sill sections connected to the side sills and extending to and connected with opposite side portions of the housing member.

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