June 4, 1935. W. T. DALTON 2,003,645

MINE CAR BUMPER

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Fig. 1.

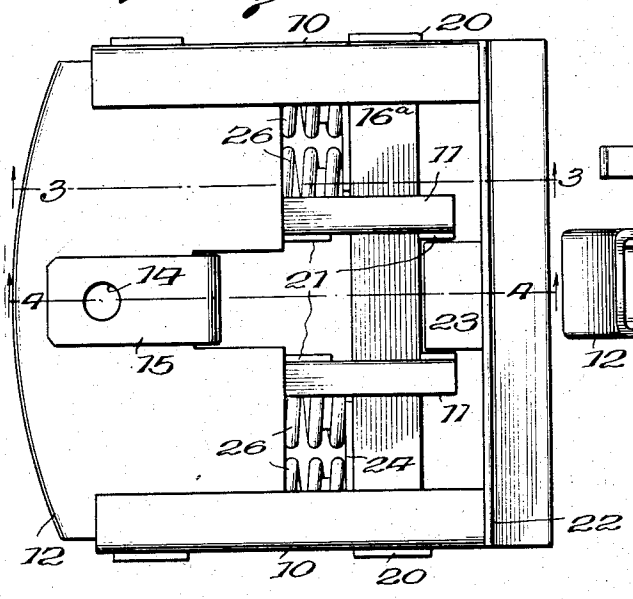


Fig. 2.

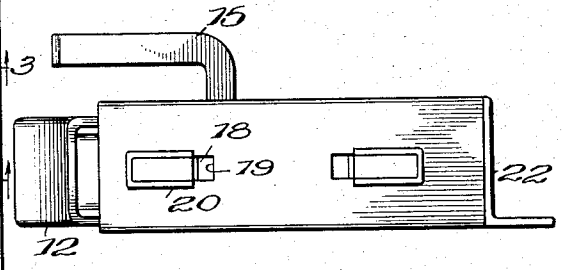
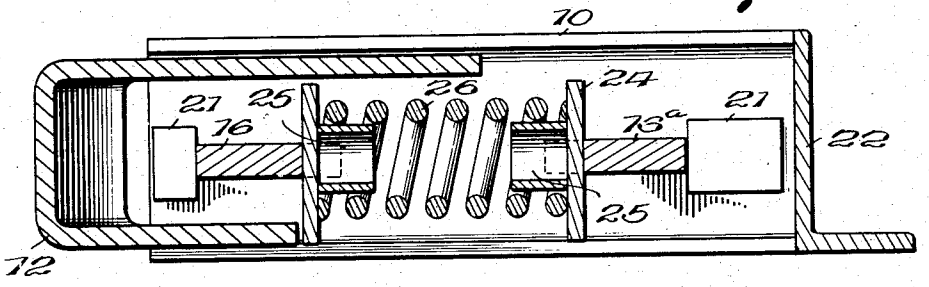


Fig. 3.



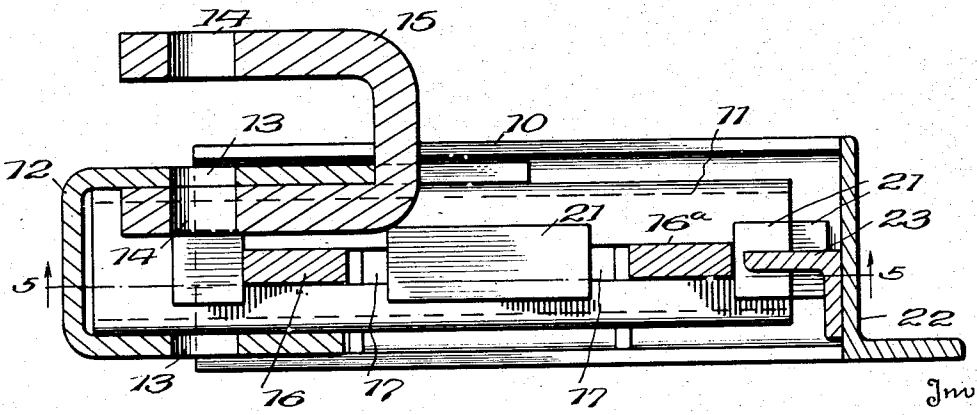


Fig. 4.

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MINE CAR BUMPER

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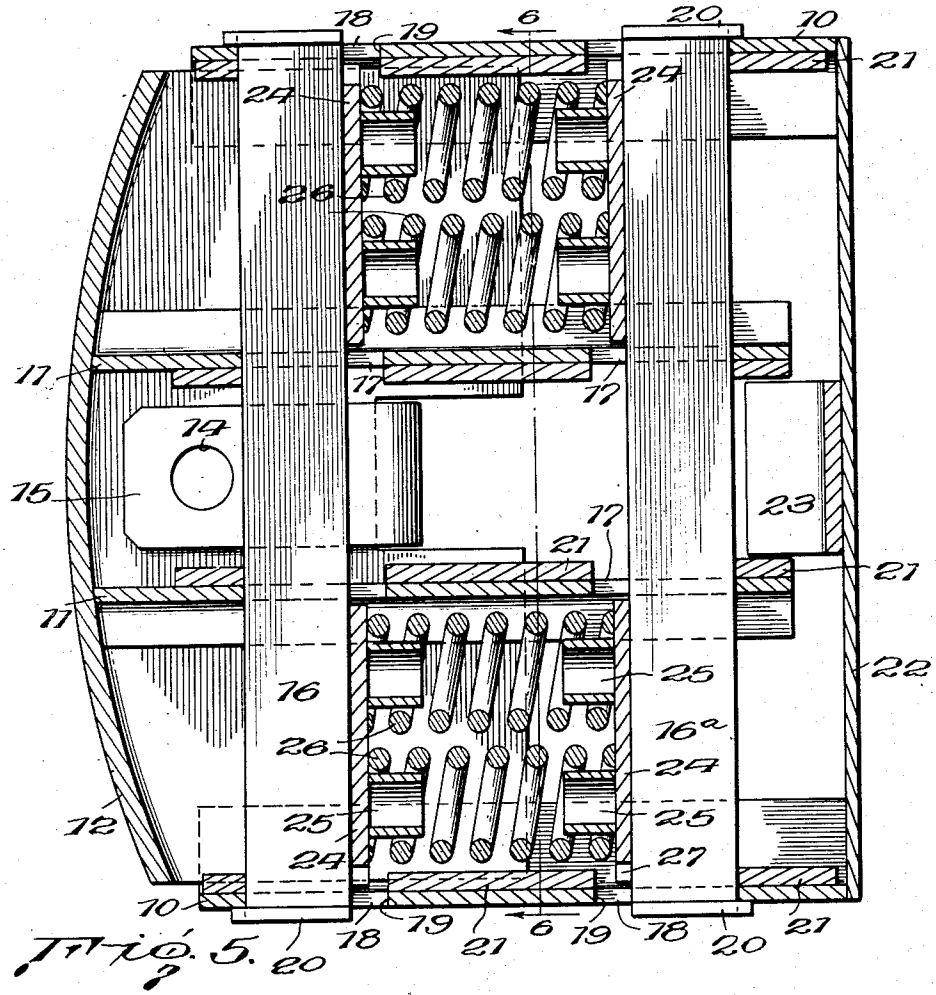


Fig. 5.

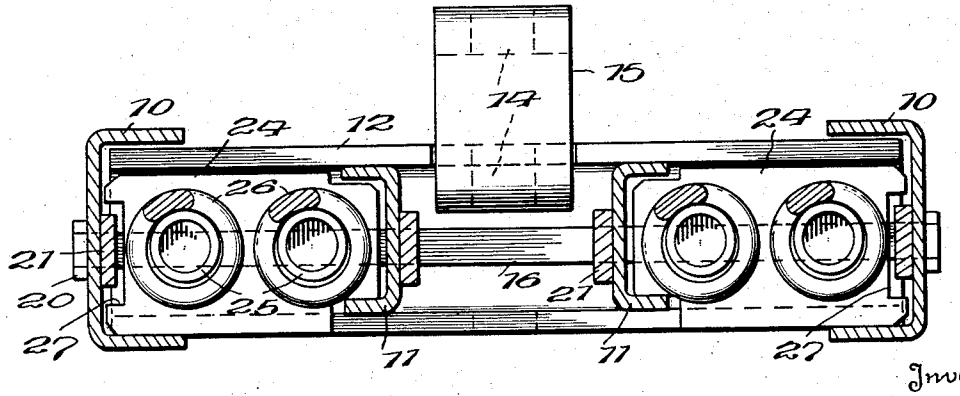


Fig. 6.

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2,003,645

MINE CAR BUMPER

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Application October 17, 1934, Serial No. 748,750

9 Claims. (Cl. 293—55)

This invention relates to improvements in car construction and particularly to the bumper and draft rigging of cars of the industrial type, such as mine cars.

One object of the invention is to provide a bumper and draft rigging unit wherein buffing and draft strains will be uniformly distributed.

Another object is to simplify the construction of such a unit whereby it may be produced at a comparatively low cost due not only to the facility with which it may be assembled, but also to the fact that a minimum of parts and material is employed.

A further object is to combine the bumper and draft rigging in a more or less unitary assembly.

The invention also contemplates a combined bumper and draft rigging for mine cars wherein all wear is imposed on a minimum number of parts any one or all of which are readily replaceable.

With these and other objects in view, the invention consists in certain details of construction and combinations and arrangements of parts, all as will hereinafter be more fully described and the novel features thereof particularly pointed out in the appended claims.

In the accompanying drawings illustrating a preferred embodiment of the present invention,

Figure 1 is a plan view of the combined bumper and draft rigging unit;

Fig. 2 is a side elevational view;

Fig. 3 is a longitudinal sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a similar view on the line 4—4 of Fig. 1;

Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 4; and

Fig. 6 is a transverse vertical section on the line 6—6 of Fig. 5, this view, and the other sectional views being taken in the direction indicated by the arrows in the several views.

Generally, the unit comprises at least two pairs of sills, the individual sills being spaced laterally of the car structure and one pair being movable relatively longitudinally of the other. The fixed sills have ways in which cross members may slide and these cross members engage the movable sills in such fashion that the latter can move relatively to the cross members. Springs interposed between the cross members yieldingly urge them away from one another, but when buffing strains are imposed on the bumper which is carried by the movable sills, one cross member goes solid against the fixed sills while the movable sills engage the other cross member and move it toward the other cross member, compressing the springs and taking up the buffing strains. Likewise, under draft strains one of the cross members goes solid against the fixed sills and the other cross member is engaged by the movable sills to compress the springs that are interposed betwen the two cross members, the movement of the several parts simply being the reverse to those under buffing strains.

Referring particularly to Figs. 5 and 6, the fixed sills 10 constitute the sides of the present unit and located intermediate said sills but spaced laterally therefrom and laterally from each other are the movable sills 11 which carry the bumper 12. The several sills and the bumper may be of any desired construction but preferably the sills are made of channel cross-section, as illustrated. The bumper 12 also preferably has upper and lower plate-like portions each formed with openings 13 in registry with openings 14 in a drawbar 15, these several openings being adapted to receive the usual coupling pin. As shown, the bumper serves the purpose of tying together, so to speak, the movable sills and the plate-like portions thereof engaging the flanges of the fixed sills, under buffing and draft strains, tend to steady the several parts during movement thereof under such conditions.

Extending transversely of the unit are floating cross members 16, 16a. These cross members project through elongated openings or slots 17 in the intermediate movable sills 11 and their ends engage in ways or guides in the fixed sills 10, such ways or guides being preferably constituted by slots 18. The ends 19 of said slots constitute stops for limiting the movement of the cross members longitudinally of the fixed sills. The cross members are provided, at their ends, with suitable means such as clips or locks 20 for preventing accidental lateral displacement of the cross members 16, 16a. To reinforce the webs of the several sills, cheek plates 21 may be provided on the webs of the several members. These cheek plates not only tend to stiffen the webs of the sills, but they also give a greater area against which the cross members 16, 16a, abut during operation of the draft gear. At the end of the unit opposite the bumper, the fixed sill members are tied together by a shield 22 which may be made of any desired shape, although preferably an angle bar is utilized. One angle of said bar is secured to the sills and the other angle projects rearwardly, as shown in Figs. 1 and 3. On the vertical angle of said bar 22, there is attached a guide member 23 for the inner ends of the mov-

able sills 11. The shield 22, therefore, serves as a support for the guide 23 and, in addition, eliminates pockets inside the car body and protects the working part of the draft gear from being filled with foreign material from the car. It also, of course, lends strength to the sill members.

As is more clearly shown in Fig. 6, the flanges of juxtaposed sills 10, 11, are directed toward each other, thus substantially forming a housing for any desired number of springs which are interposed between the cross members 16, 16a, and yieldingly urge said cross members away from one another. There is a follower plate 24 abutting against each of the cross members 16, 16a, and each follower has one or more projections 25 for retaining the springs 26 between the cross members 16, 16a. In the present instance, there is shown two sets of two springs each, but it will be understood that the number and size of the springs can be varied at will, the over-all dimensions of the unit being the determining factor. In some instances, dimensional limitations may require that double or nested coil springs be used, in order to obtain the desired spring strength. The follower plates should be recessed as at 27 to accommodate the cheek plate 21 on the fixed sills. The corners of the follower plates may be removed to insure free action.

With the parts in the position illustrated in Fig. 5, assuming that buffing strains are imposed on the bumper 12, the cross member 16a remains stationary, but the cross member 16, which is solid against the ends of the slots in the movable sill members 17, will be forced toward the cross member 16a, thus compressing the springs. The length of the several slots 18 is such that this movement of the cross member 16 toward member 16a is limited and said member 16 will come into engagement with the opposite end of its slots in the side sills 10 before the springs go solid. Upon termination of the application of buffing strains to the mechanism and assuming that at the termination thereof draft strains are imposed on the gear, cross member 16 moves in reverse direction until it engages the forward ends of the slots in the main sills 10 and, during this movement, the other cross member 16a will be engaged by the movable sill members 11 and urged forwardly, thus compressing the springs to take up such draft strains until it comes into engagement with the forward end of its slots, this occurring, of course, just as in the case of buffing strains, before the springs go solid.

It will thus be seen that the present bumper and draft gear is of very simple construction. The bumper proper lends itself favorably towards a merger with other parts, thus reducing the total number of individual parts in completing the unit. It also ties together certain members of the bumper construction and furnishes a bearing for the coupling pin. The main, or side, bumper sills 10 serve as guides for other members of the bumper unit and also as a means of securing the bumper unit to the car body. The lateral disposition of the several sills and their coordination with the cross members 16, 16a, present an ideal construction and arrangement for the distribution of the buffing and draft strains that are imposed upon the mechanism.

What I claim is:

1. A combined bumper and draft rigging for mine cars and the like comprising fixed side sills, intermediate sills movable longitudinally of the side sills, a bumper carried by the intermediate sills, a pair of cross members each extending transversely of all said sills, said cross members being free to move longitudinally of the side sills and the intermediate sills being movable relatively to the cross members, and means for yieldingly urging said cross members away from each other.

2. A combined bumper and draft rigging for mine cars and the like comprising fixed side sills, intermediate sills movable longitudinally of the side sills, a bumper carried by the intermediate sills, a pair of cross members each extending transversely of all said sills, said cross members being free to move longitudinally of the side sills and the intermediate sills being movable relatively to the cross members, stops on the side sills for limiting the movement of the cross members relatively to said sills, and means for yieldingly urging said cross members away from each other.

3. A combined bumper and draft rigging for mine cars comprising two pairs of parallel sill members, one pair of said members being movable longitudinally of the other, a bumper carried by said movable pair, cross members slidably supported by said sills, means for limiting the sliding movement of said cross members, and means for yieldingly urging said cross members away from each other.

4. A combined bumper and draft rigging for mine cars comprising inner and outer pairs of laterally spaced parallel sill members, one pair of said sills being movable relatively longitudinally to the other, a bumper carried by the movable sills, transversely arranged members extending through the inner pair of sills, said inner sills being movable relatively to said transverse members, guide ways extending longitudinally of the outer sills for said transverse members, and a plurality of compressible elements interposed between the transverse members.

5. A combined bumper and draft rigging for mine cars comprising a pair of fixed sills, a pair of draft members movable longitudinally of said sills, a bumper carried by said draft members, a drawbar attached to said bumper, ways in said sills, cross members slidable in said ways, said draft members being slidably supported on said cross members, springs interposed between said cross members yieldingly urging the latter away from each other, and means for limiting the movement of said cross members in said ways.

6. A combined bumper and draft rigging unit for mine cars comprising a pair of fixed sill members, a pair of draft members, all of said members having transversely alined slots therein, a bumper carried by said draft members, a drawbar mounted on said bumper, cross members extending through the slots in said sill and draft members and means yieldingly urging said cross members away from each other, said cross members being slidable longitudinally of the sill members in the slots in the latter and said draft members being movable relatively to said sill and cross members.

7. A combined bumper and draft rigging unit for mine cars comprising a pair of fixed sill members, a pair of draft members, all of said members having transversely alined slots therein, a bumper carried by said draft members, a drawbar mounted on said bumper, cross members extending through the slots in said sill and draft members and springs carried by said cross members and yieldingly urging said cross members away from each other, said cross members being

slidable longitudinally of the sill members in the slots in the latter and said draft members being movable relatively to said cross members longitudinally of the sill members.

8. In a combined bumper and draft gear for mine cars, the combination of main sills adapted to be attached to the car body, laterally spaced sills intermediate the main sills and movable longitudinally of said main sills, floating cross members carried by the intermediate and main sills, springs interposed between said cross members and yieldingly urging them away from each other, a bumper carried by the intermediate sills, an end plate connecting the main sills, and a guide means on said end plate for the movable intermediate sills.

9. In a combined bumper and draft gear for mine cars, main side sills adapted to be mounted on said car, vertically spaced flanges on said sills, a bumper slidable between said vertically spaced flanges, intermediate sill members movable with said bumper, cross members carried by said intermediate sills and movable relatively longitudinally of the latter, springs yieldingly urging said cross members away from each other, ways in the main sills for said cross members, said ways comprising means for limiting the movement of said cross members, a plate connecting the main sills at their ends remote from the bumper, and guide means on said plate for said movable intermediate sill members.

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