July 25, 1933. J. H. LINK 1,919,736

DRAFT RIGGING

Filed Feb. 5, 1932

Fig. 1

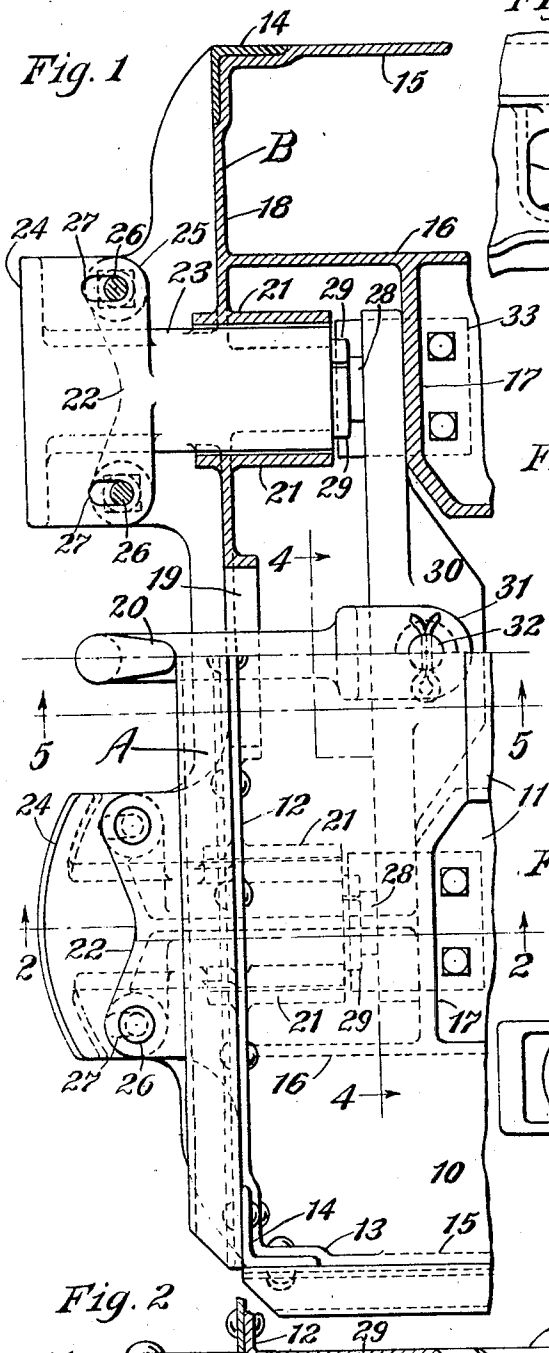


Fig. 3

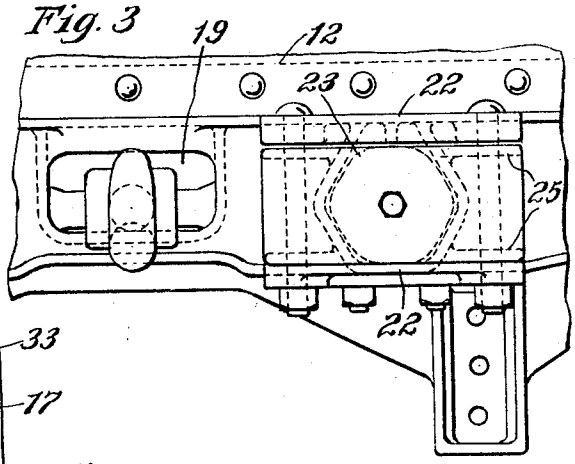


Fig. 4

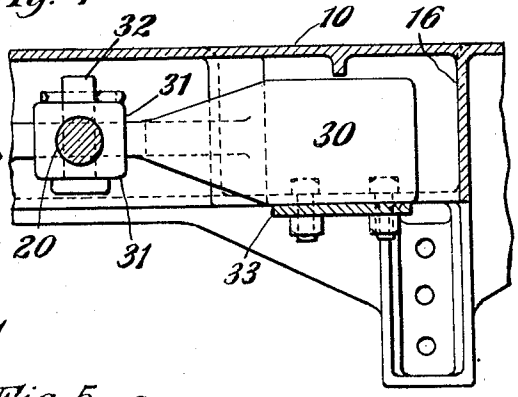


Fig. 5

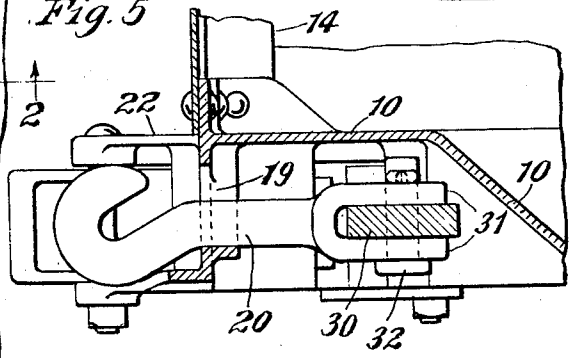
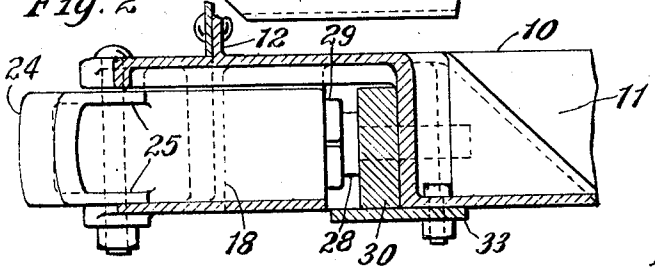


Fig. 2



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UNITED STATES PATENT OFFICE

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DRAFT RIGGING

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This invention relates to improvements in draft riggings especially designed for use in connection with mine cars.

One object of the invention is to provide a draft rigging for mine cars, which rigging is of simple design and comprises few parts.

A further object of the invention is to provide a draft rigging of the character set forth in the preceding paragraph wherein shock absorbing means of high capacity are provided by the employment of elements having sliding frictional contact with each other and wherein the shock absorbing means are so located that they serve to absorb both buffing and draft shocks.

Another object of the invention is to provide a draft rigging for mine cars wherein a minimum number of shock absorbing devices are employed through the use of friction buffers located at opposite sides of the ends of the car, the friction means of the buffers being also actuated in draft by means of a coupler connection with the adjacent car.

A still further object of the invention is to provide a combined means for absorbing both buffing and draft shocks, especially designed for use in connection with mine cars having a one-piece casting underframe structure.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing, forming a part of this specification, Figure 1 is a part horizontal, sectional view through the underframe structure and a part top plan view of one end portion of a mine car, illustrating my improvements in connection therewith. Figure 2 is a longitudinal, vertical, sectional view, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is a partly broken, end elevational view locking from the left in Figure 1. Figure 4 is a transverse, vertical, sectional view at one side of the car, corresponding substantially to the line 4—4 of Figure 1. And Figure 5 is a longitudinal, vertical, sectional view, corresponding substantially to the line 5—5 of Figure 1.

In said drawing, A designates generally one end of a mine car. As shown, the underframe structure of the car, which is indicated by B, is in the form of a one-piece casting, the upper wall 10 of which forms the floor member of the car. As shown in Figures 1, 2, and 5, the central portion of the floor member 10 is depressed, as indicated at 11, thereby disposing the major portion of the floor below the floor sections which extend along the sides and opposite ends of the car. The casting is provided with vertical flanges or ribs 12—12 at opposite ends of the car, extending transversely of the same. The flanges 12—12 have short angular sections 13—13, which extend along the sides of the car. A post 14 is secured to each flange 12 at opposite sides of the car. As will be understood, the flanges 12—12 also serve as securing means for the vertical walls of the car body.

At opposite sides of the car, the underframe casting B has longitudinally extending, spaced webs 15 and 16, which form longitudinal sill members. The flanges 16—16, which are disposed innermost, have transverse wall sections 17—17 laterally inwardly extending therefrom, as clearly shown in Figure 1. The wall sections 17—17 form transverse abutment members serving as inner stops for the shock absorbing devices hereinafter more fully described. At each end, the car underframe B is provided with a transverse end wall or sill member 18, which connects the outer ends of the webs 15 and 16 at opposite sides of the car. Midway between the ends, the end wall 18 is provided with an elongated opening 19 adapted to accommodate the coupler hook 20. The hook 20 is of the usual form employed in connection with mine cars, a link being used between the hooks 20 of two adjacent cars in order to couple the same. Inwardly of the opposite webs 16—16, the end wall 18 is provided with a guide opening reinforced by guide walls 21—21. The guideway formed by the walls 21—21 is preferably of hexagonal section and is in alignment with the inner stop member 17 at the corresponding side of the car. The underframe casting is also provided with top and bottom outwardly projecting flanges 22—22, which extend from the end walls 18—18.

A friction shell 23, which is of hexagonal cross section so as to fit the corresponding guideway formed by the guide walls 21—21, is slidably mounted within said guideway. The shell 23 is closed at the outer end by a transverse wall 24, which extends outwardly beyond the opposite sides of the shell 23 and is reinforced by top and bottom spaced webs 25—25. The transverse end wall 24 of each shell 23 forms a buffing head adapted to engage the buffing head at the corresponding side of the adjacent car. Each friction casing 23 is connected to the underframe structure B by means of a pair of vertically disposed bolts 26—26 extending through vertically aligned, longitudinally extending slots 27—27 in the webs 25—25 of the friction shell and through aligned openings provided in the flanges 22—22 at the corresponding side of the underframe structure of the car. As will be evident, the slot and bolt connections between the underframe structure B and the friction shells restrict the outward movement of the friction shells 23—23. The friction shells 23—23 form part of the friction buffing mechanism, which mechanism is of well-known type, including wedge friction means cooperating with the friction shell and having its movement inwardly of the shell resisted by spring means. The wedge member of each friction means is indicated by 28 and the cooperating friction shoes by 29—29. As clearly shown in Figures 1 and 2, the friction means comprising the wedge 28 and the shoes 29—29 cooperate with the open inner end of each friction shell 23.

A transversely arranged pressure transmitting beam 30 is located at each end of the car, each beam having the opposite end sections thereof bearing on the inner stop members 17—17 respectively. The outer side of the beam 30 engages the wedge members 28—28 of the two friction shock absorbing mechanisms at the corresponding end of the car. The coupler hook 20, hereinbefore referred to, is forked at the inner end, as indicated at 31—31, said forked portion embracing the beam 30 and being connected to the same by a pivot pin 32 extending through said beam midway between the ends thereof. As most clearly shown in Figure 4, the end portions of the beam 30 are wider vertically than the central portion thereof, thereby providing ample bearing surfaces for engagement with the stop members 17—17 and the wedges 28—28. The beam 30 is supported at opposite ends by detachable plates 33—33 secured by any suitable means to the bottom wall of the underframe casting B, as clearly illustrated in Figures 1 and 2.

The operation of my improved draft rigging for mine cars is as follows: Upon a buffing force being transmitted to the buffing members 24—24 of the friction casings 23—23, the casings will be forced to slide inwardly of the car, thereby compressing the friction mechanism against the beam 30 which is held in fixed position by the inner stops 17—17. Compression of the friction shock absorbing mechanisms in buff is limited by engagement of the inner ends of the friction shells with the transverse beam member 30. Outward movement of the friction shells 23—23 is limited by the bolts 26—26 engaging the inner end walls of the slots 27—27. During a draft action, the coupler hook 20 will be pulled outwardly, thereby pulling the beam 30 outwardly also and forcing the friction means inwardly of the friction shells 23—23. The compression of the friction shock absorbing mechanisms in draft is limited by engagement of the forward side of the beam 30 with the inner ends of the friction shells 23—23 and the inner ends of the walls 21—21 of the guideways.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a draft rigging for cars, the combination with a pair of fixed sleevelike guides at the end of the car; of friction shock absorbing mechanisms at opposite sides of the end of the car, each shock absorbing mechanism including a fraction shell and cooperating friction elements, each of said shells being slidable in one of said sleevelike guides and having a buffing head at the outer end thereof projecting outwardly of the car; a transverse pressure transmitting beam for compressing said shock absorbing mechanisms in draft, said beam having its draft movement limited by engagement with the inner ends of said sleevelike guides; and coupler means connected to said beam intermediate the ends thereof.

2. In a draft rigging for cars, the combination with the underframe structure of the car; of fixed cylindrical guide sleeves on said underframe at opposite sides of the end of the car; inner stop members at opposite sides of the same end of the car on said underframe structure; a transverse beam at each end of the car movable lengthwise of the car, said beam having the opposite end portions thereof engageable with the inner ends of said sleeves to limit outward movement of said beam, and said beam being engageable with said inner stop members to limit inward movement of same beam; a shock absorbing mechanism at each side of each end of the car, each shock absorbing mechanism including a friction shell and cooperating friction means, said shell being slidable in the corresponding guide sleeve, said shell being closed at the outer end by a transverse wall and

normally projecting outwardly beyond the end of the car to directly receive buffing shocks, the friction means being located at the inner end portion of the shell and bearing on the corresponding end portion of the beam at the same end of the car; and a coupler member connected to said beam between the ends thereof.

3. In a draft rigging for cars, the combination with an underframe structure having sleevelike guides at opposite sides of the end of the car and outwardly projecting top and bottom flanges forwardly of said guides; of inner stop members disposed inwardly of each guide; a plurality of friction shells, each shell closed at the outer end, thereby providing an end wall presenting a buffing surface, each shell having laterally outwardly projecting top and bottom flanges rearwardly of the buffing face, one of said shells being slidable within each guide and having the flanges thereof guided between the top and bottom flanges of the underframe structure; friction means at the inner end of each shell having frictional engagement therewith; a transversely disposed member having the opposite end sections thereof interposed between the friction means of said shells and said inner stops; means extending through said flanges of the underframe and shells for limiting outward movement of the shells; and coupler means connected to said transverse member between the ends thereof.

4. In a draft rigging for cars, the combination with an underframe structure having guides at opposite sides of the end of the car and top and bottom, outwardly projecting, horizontal flanges forwardly of said guides, said flanges having pairs of guide slots at opposite sides of the car; of inner stop members disposed inwardly of each guide; a plurality of friction shells, each shell closed at the outer end, thereby providing an end wall presenting a buffing surface, each shell also having outwardly projecting side flanges at opposite sides thereof rearwardly of the end wall and formed integral with said wall, one of said shells being slidable within each guide; limiting stop pins at opposite sides of each shell extending through the flanges thereof and working in the corresponding pair of slots of the flanges of the underframe structure for restricting outward movement of each shell; friction means at the inner end of each shell having frictional engagement therewith; a transversely disposed member having the opposite end sections thereof interposed between the friction means of said shells and said inner stops; and coupler means connected to said transverse member between the ends thereof.

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