H. S. HART.

SHOCK INDICATING MEANS FOR DRAFT RIGGING.

APPLICATION FILED APR. 1, 1918.

1,412,737. Patented Apr. 11, 1922.

Fig. 1.

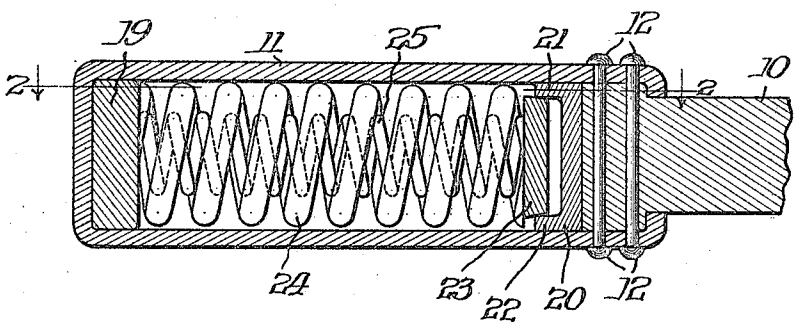


Fig. 2.

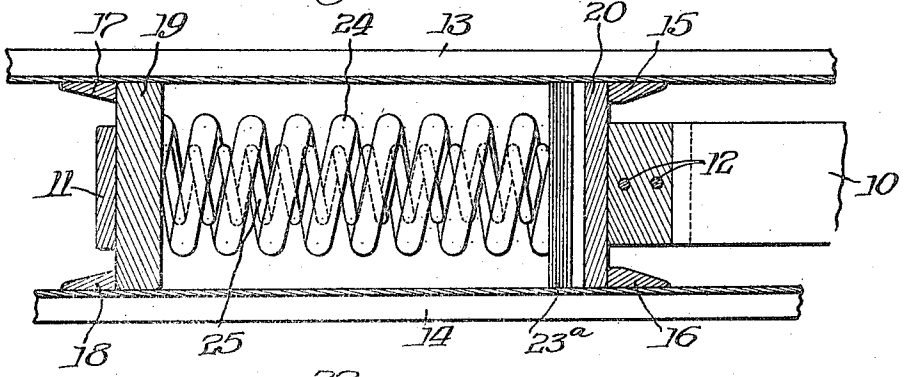
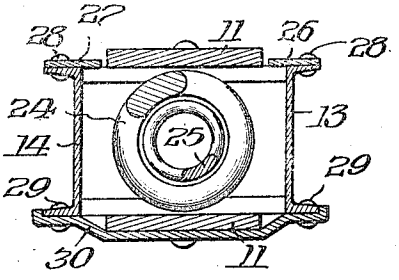


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SHOCK-INDICATING MEANS FOR DRAFT RIGGING.

1,412,737. Specification of Letters Patent. Patented Apr. 11, 1922.

Application filed April 1, 1918. Serial No. 225,904.

To all whom it may concern:

Be it known that I, HARRY S. HART, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Shock-Indicating Means for Draft Rigging, of which the following is a specification.

My invention relates in general to railway cars, and more particularly to the draft gears, and has for its object the provision of an improved construction to record excess pressure upon the various parts.

It is a frequent occurrence in the use of railroad rolling stock that parts of the draw gear mechanism become broken, such, for instance, as the coupler, or draft gear which yieldingly connects the coupler with the draft sills of the car. When such breakage occurs it is often difficult to determine whether it is due to defects in the broken part, or to the fact that they have been subjected to abnormal pressure. When a coupler is broken the question is presented whether it was defective, or whether the draft gear connecting it to the draft sills of the car was inadequate to dissipate the blow to which the coupler was subjected when broken. These uncertainties lead to trouble in determining whether broken parts are to be replaced by the company furnishing them to the railroad, or whether the breakage was due to no imperfection in the broken part but to abnormal blows or inefficient cooperating parts.

Moreover it is desirable, in order that the manufacturer of the coupler, draft gear, or other member of the draft rigging of a car may be able to guarantee that it will withstand a certain maximum pressure, that a pressure in excess of such maximum guaranteed amount when imposed upon the guaranteed part will be permanently recorded, thereby relieving the guarantor of liability when breakage or injury occurs by reason of pressure in excess of the maximum guaranteed amount.

The object of my invention is the provision of an indicating mechanism for use in railway cars, the members of which, under normal conditions, will remain in fixed relation with each other, but upon being subjected to a blow or shock beyond a predetermined degree will permanently record such fact.

My invention consists in the combination and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying sheet of drawings, and in which—

Figure 1 is a vertical sectional view showing a draft rigging embodying my invention;

Figure 2 is a horizontal sectional view; and

Figure 3 is a cross section showing the supporting means for holding the draft gear in position.

Referring now specifically to the drawings, and in which like reference characters refer to like parts throughout, 10 is the coupler, having a yoke 11 secured thereto by means of rivets 12—12 extending through the yoke and coupler butt, the yoke and draft rigging being disposed between the draft sills 13—14 extending longitudinally of the car and secured to the center sills 26, 27 by means of rivets 28, 28. Secured to each of the draft sills 13, 14 in any suitable manner, are cheek plates 15, 16 that receive and transmit to the draft sills 13, 14, forward pull delivered through the front follower 20, (hereinafter described). At the rear of the draft gear a similar pair of cheek plates 17, 18, secured to the draft sills 13, 14, receive and transmit to said sills rearward thrust imposed through the rear follower 19, which extends transversely through the yoke at the rear thereof. The front follower 20 lies within the yoke and extends transversely therethrough, immediately adjacent to and in abutment against the rear of the coupler butt.

According to the preferred method of realizing the present invention, one of the followers, for instance the front follower 20, carries a permanently associated indicating member through which loads of both pull and thrust are transmitted, and which is sustained by the follower with a resistance equal to a predetermined maximum load, but yields and permanently assumes a new position on the follower, under a load in excess thereof, while still continuing to serve as a load transmitting medium. To these ends follower 20 is provided with projections 21 and 22 at its upper and lower sides, respectively, and a substantially rectangular member 23, constituting a spring seat, has its upper and lower edges in frictional contact with these projections 21, 22, so that the members 20 and 23 are held in telescopic relation to each other. Fitted within the yoke and interposed between the follower 19 and

telescoping spring seat 23 is a pair of coiled springs 24 and 25, the spring 25 being fitted within the spring 24 in the usual manner. Secured to the lower sides of the draft sills 13, 14 by means of rivets 29, 29, is a suitable supporting member 30 which supports and holds the draft rigging in position between the draft sills.

The two part follower has its members 20 and 23, before insertion in the draft gear, pressed together by any suitable mechanism that will telescope them to a position corresponding to a predetermined pressure. This telescoping may be resisted by wedging action, as for instance by making the spring seat tapered. The member 23 may be marked or scored across its edge as indicated at 23^a in Figure 2, to indicate the relative positions of the two members, and show whether the relation of the two members has been changed by a shock or blow in excess of the force used in fitting the members together.

It will be understood that the pressure exerted upon draft gears under normal working conditions is estimated at approximately 360,000 pounds, and this is the amount of pressure I propose to use in fitting the members 20 and 23 together, although, of course, it will be understood that this may be varied in any manner desired, the point being that when the members 20 and 21 are set together by any predetermined pressure any shock in excess of the original and predetermined force used in setting the members together will drive the members 20 and 23 closer together so that upon inspection it will be readily apparent that blows in excess of the pressure used in fitting the members together has been exerted upon the draft gears. It will thus be easy to determine whether or not the draft gears have only been subjected to the shocks incident to the usual and normal operation, or whether violent shocks and strains have been imposed in excess of those usual in the operation of railroad cars.

While I have described more or less precisely the details of construction which I prefer to employ, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts, and substitution of equivalents, as circumstances may suggest or render expedient without departing from the spirit or scope of my invention.

I claim:

1. In a railway car, the combination of a draft gear and a telescopically arranged two-part mechanism permanently associated therewith and through both parts of which draw-bar loads are transmitted, adapted to indicate blows beyond a predetermined maximum.

2. In a railway car, the combination of a draft gear comprising a yoke secured to a coupler, strain resisting mechanism within the yoke and a shock indicating member through which coupler loads are transmitted disposed within said yoke between the strain resisting mechanism and the coupler.

3. In a draft rigging for railway cars, a member through which the loads of both forward pull and backward thrust are transmitted, comprising two parts, both of which partake in the transmission of the load and which are supported one against the other with a resistance equal to a predetermined normal load to be transmitted, but yielding one upon the other under a load in excess of such normal load.

4. In a draft rigging for railway cars, the combination of a draw-bar, a spring, followers for said spring through which it is adapted to transmit both pull and thrust, upon each of which said draw-bar is adapted to act; one of said followers carrying a spring seat and sustaining it against pressure of said spring, with a resistance equal to a predetermined load, but permitting the seat to yield and assume a new position relatively to the follower and thereby indicate a load in excess of said predetermined load.

5. In a draft rigging for cars, a member through which the load is transmitted comprising two parts, both of which partake of such transmission and one of which is sustained against the other frictionally and with a resistance equal to a predetermined maximum load to be transmitted, but yielding one upon the other under a greater load.

6. A draft gear for railway cars comprising a load transmitting member and a spring between which loads are transmitted in the functioning of the draft gear, and a spring seat interposed between said spring and transmitting member, sustained by said transmitting member with a resistance equal to a normal load to be sustained but displaceable thereon under an abnormal load.

7. In a railway car, the combination of a draft gear comprising a yoke secured to a coupler, strain resisting means within said yoke, cheek plates secured to the draft sills of the car, and follower bars within said yoke contacting with said retaining plates, one of said follower bars adapted to indicate a blow beyond a predetermined maximum.

8. In a railway car, the combination of a draft gear comprising a yoke secured to a coupler, follower bars within the yoke, one of said follower bars consisting of members in telescopic arrangement with each other, and springs interposed within the yoke between the follower bars.

Signed at Chicago, Illinois, this 13th day of March, 1918.

HARRY S. HART.

Witnesses:
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