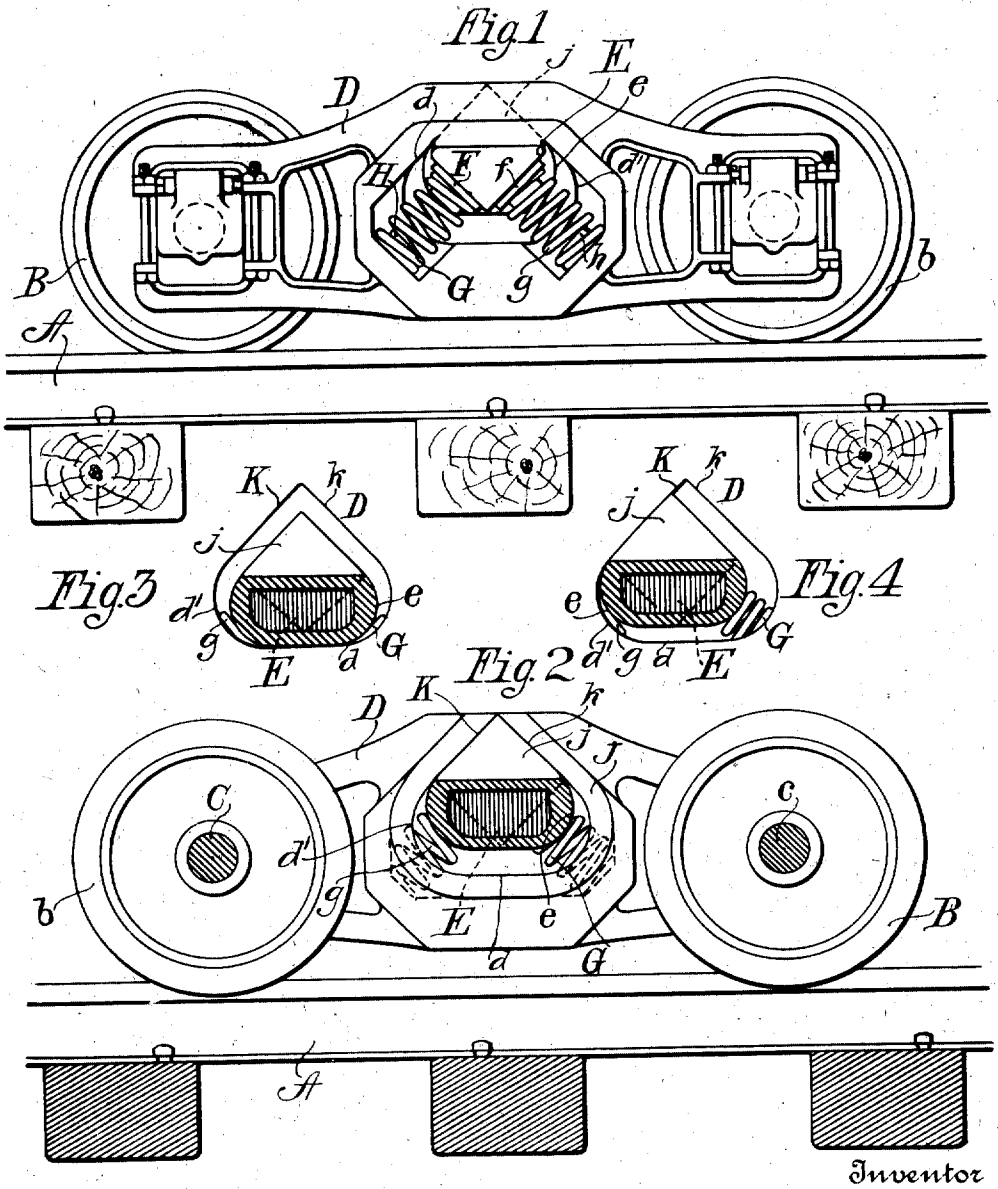
O. T. DOUGHERTY.

RAILWAY CAR TRUCK.

APPLICATION FILED SEPT. 27, 1916.

1,226,756.

Patented May 22, 1917.



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UNITED STATES PATENT OFFICE.

OWEN THOMAS DOUGHERTY, OF ST. PAUL, MINNESOTA.

RAILWAY-CAR TRUCK.

1,226,756. Specification of Letters Patent. Patented May 22, 1917.

Application filed September 27, 1916. Serial No. 122,520.

To all whom it may concern:

Be it known that I, OWEN T. DOUGHERTY, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Railway-Car Trucks, of which the following is a specification.

This invention relates to railway car trucks, and has for its object the production of a truck structure comprising parts of special construction and arrangement, whereby it is believed the up and down movements of the bolster or weight-supporting member of the truck are fully cushioned, and, at the same time, the forward or rearward impulses or movements of the member are yieldingly received by the springs. It is thought to be a matter of common knowledge and experience that when a car is started there are always several backward and forward shocks before the whole moves evenly forward, and, when a car is stopped there is always a final and apparently rearward jolt as the body of the car comes to rest. By the use of this invention the initial and final shocks are taken up by suitably arranged springs, and not only is the car thus equipped rendered more pleasant to ride upon, but its useful life is materially increased.

In the accompanying drawings, the parts of this invention, their construction and relative positions and arrangement are illustrated. Figure 1 is a side view of all parts assembled and shows the outer side of the truck frame, with respect to the rails of the track. Fig. 2 is a view of the inside of the side frame of a car truck constructed in accordance with this invention, the view being taken from between the rails of the track, and the axles and certain other parts being shown in section. Fig. 3 is a diagrammatic representation indicating the position of the rounded end portion of the bolster when the car is overloaded and the springs are sufficiently compressed to bring the bolster downwardly into contact with the base of the opening through the frame. Fig. 4 is an explanatory figure similar to Fig. 3, and showing the manner in which the pull of the locomotive causes the bolster to rise upon the upwardly curved portion of the frame and relieves the springs in order that they may assist in supporting the load by their resilience.

Throughout the description and drawings the same letter is used to refer to the same part.

Considering the drawings, upon the car-track A are the side wheels B, *b*, of a railway truck of customary construction, and having the axles C, *c*.

The truck axles are journaled in suitable boxes carried by a frame D, and the frame has an opening *d* in the middle of its length. Arranged in the opening of the frame is a head E of the bolster *e*. It will be noted in Fig. 1 that the sides of the head E converge downwardly, and against those sides of the head are arranged the tables or spring terminals F and *f*, the shanks or lugs of which engage the spiral springs G and *g*. The tables F and *f* rest movably against the converging sides of the head E, and as the car proceeds and the head moves up and down the sides of the head slide upon the tables F and *f*. Any suitable means such as the lugs H and *h*, may be provided to hold the lower ends of the springs in the opening *d* of the frame D.

It will be observed that in Fig. 2, which shows the inside of the frame D, that there is a collar or yoke J, formed as usually constructed integral with the frame. The upper part of the collar J is provided with the upwardly converging sides K and *k* as illustrated, and the bolster is provided with a portion or block *j* corresponding in form to and arranged between the converging sides of the collar J.

In the operation of this invention, the up and down movements of the bolster, which is the member that carries the weight of the car, are taken up by both springs together, the converging sides of the head E sliding upon the tables F and *f* as already explained. Let it be assumed that the car is in motion, and that the brakes are applied more or less carelessly and sharply as repeat-

edly happens. The momentum of the car body forward is abruptly opposed, and when trucks of ordinary construction and with which this applicant is acquainted are used, there is a succession of backward and forward shocks, always unpleasant to the occupants of the car. When this invention is used, the momentum of the body forward presses the inclined side of the head or block *j* against the corresponding incline of the collar J, and the shock is taken up by the spring G. Rearward impulses are similarly taken up by the spring *g*. It is believed, therefore, to have been made clear by the drawings and the foregoing specification that the bolster is adequately cushioned, by means of the two inclined coiled springs and the construction disclosed, for sudden movements of any kind up or down, forward or rearward. Attention is also invited to the fact, in connection with the explanatory Figs. 3 and 4 of the drawings, that if a car is loaded so heavily that the springs are greatly compressed and the bolster rests upon the bottom of the opening *d* in the frame D, a forward pull of the engine draws the lower and rounded portion of the end of the bolster *e* up on the upwardly curved side *d'* of the lower portion of the opening *d*, thus relieving the springs somewhat and enabling them to employ their resilience in aid of the support of the load.

Having now described this invention and explained the mode of its operation, what I claim is:—

1. In a car truck, the combination with a frame, the said frame having an opening, of springs arranged in the said opening and inclined upwardly and toward each other, a bolster having a head arranged in the said opening, the said head being supported by the said springs, the said frame having a portion provided with converging sides, and the said bolster having a portion arranged between the said converging sides and constructed to slide thereon during the progress of the car.

2. In a car truck, the combination with a frame, the said frame having an opening, of springs arranged in the said opening and inclined upwardly and toward each other, a bolster having a head arranged in the said opening, the said head being supported by the said springs, the said frame having a portion formed on the inner side thereof provided with upwardly converging sides, and the said bolster having a portion arranged between the said converging sides and constructed to slide thereon during the progress of the car.

3. In a car truck, the combination with a frame having a middle opening, of springs arranged in the said opening and inclined upwardly and toward each other, a bolster having a head supported by the said springs, the said head having downwardly converging sides, the said springs bearing movably upon the said sides of the head, the said frame having a portion provided with converging sides, and the said bolster having a portion arranged between the said converging sides and constructed to slide thereon during the progress of the car.

4. In a car truck, the combination with a frame having a middle opening, of springs arranged in the said opening and inclined upwardly toward each other, a bolster having a head supported by the said springs, the said head having downwardly converging sides, the said springs bearing movably upon the said sides of the head, the said frame having a portion formed on the inner side thereof provided with upwardly converging sides, and the said bolster having a portion arranged between the said converging sides of the frame and constructed to slide thereon during the progress of the car.

5. In a car truck, the combination with a frame, of springs supported by the frame and inclined upwardly and toward each other, a bolster having a portion supported by the said springs, the said frame having a portion provided with converging sides, and the said bolster having a portion arranged between the said converging sides of the frame and constructed to slide thereon during the progress of the car.

6. In a car truck, the combination with a frame, the said frame having an opening, the said opening having the sides of its lower portion curving upwardly, of springs arranged in the said opening and inclined upwardly and toward each other, a bolster having a head arranged in the said opening, the said head being supported by the said springs, the said bolster having a rounded end portion arranged in the said opening whereby when the springs are compressed the said rounded portion of the bolster may be moved against the said curving sides of the said opening, the said frame having a portion provided with converging sides, and the said bolster having a portion arranged between the said converging sides and constructed to slide thereon during the progress of the car.

7. In a car truck, the combination with a frame, the said frame having an opening, the said opening having the sides of its lower portion curving upwardly, of springs arranged in the said opening and inclined upwardly and toward each other, a bolster having a head arranged in the said opening, the said head being supported by the said springs, the said bolster having a rounded end portion arranged in the said opening

whereby when the springs are compressed the said rounded portion of the bolster may be moved against the said curving sides of the said opening, the said frame having a collar formed on the inner side thereof provided with upwardly converging sides, and the said bolster having a portion arranged between the said converging sides and constructed to slide thereon during the progress of the car.

In testimony whereof I affix my signature.

OWEN THOMAS DOUGHERTY.

Witnesses:
I. A. DUNSMOOR,
C. MONICA RALPH.