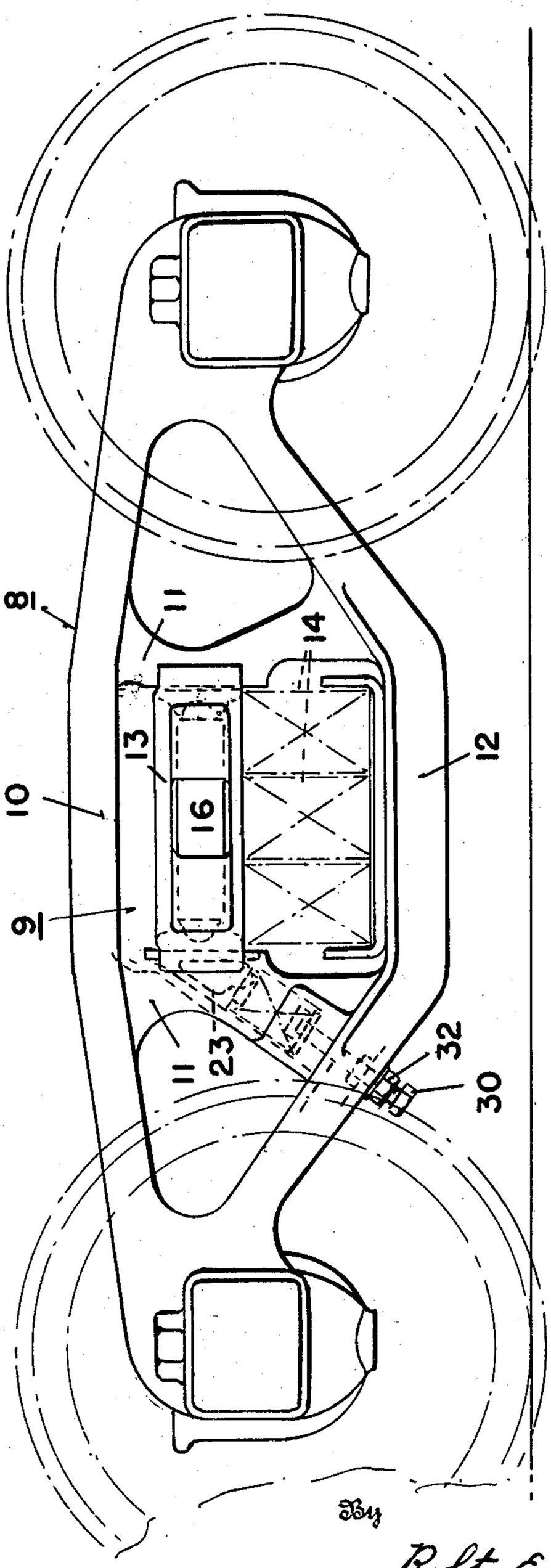
Jan. 27, 1953 C. L. ORR 2,626,572

DAMPING DEVICE FOR RAILWAY CAR TRUCKS

Original Filed Aug. 26, 1947 4 Sheets-Sheet 1

FIG. 1



Inventor
C. L. ORR,

By
Robt. E. Barry Attorney

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Original Filed Aug. 26, 1947 4 Sheets-Sheet 2

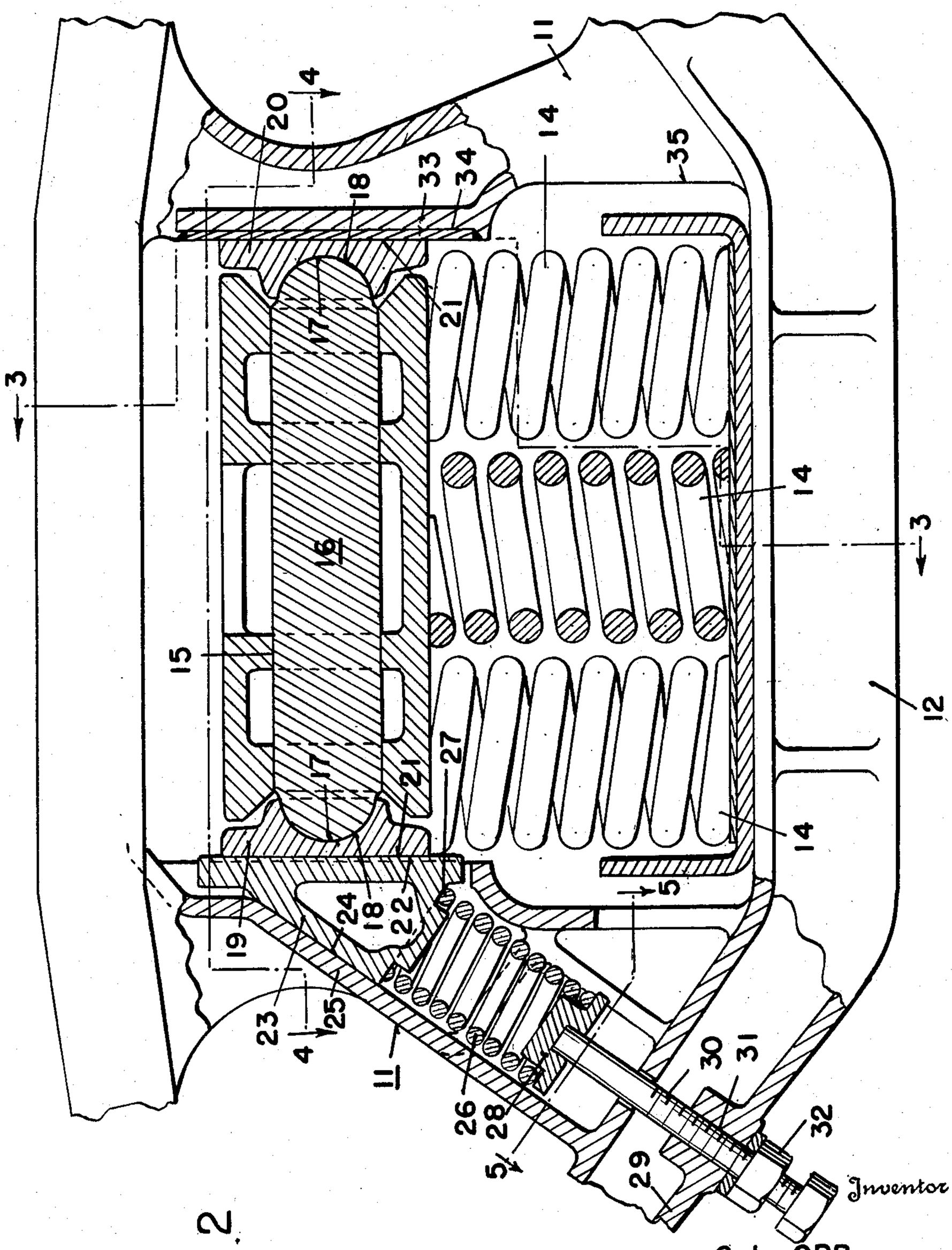

FIG. 2.

Inventor

C. L. ORR,

By

Robt. E. Barry Attorney

Jan. 27, 1953 C. L. ORR 2,626,572

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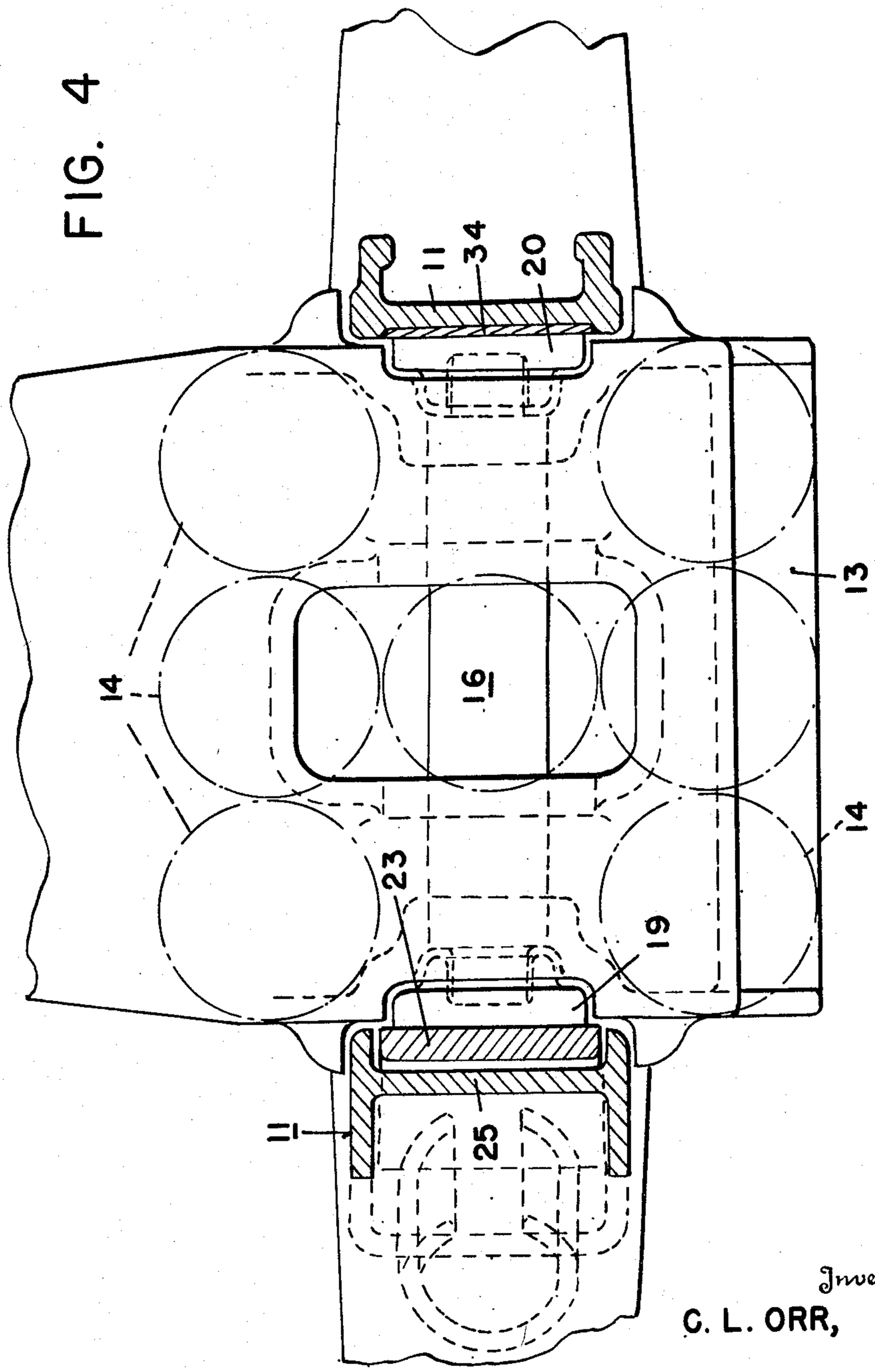
Original Filed Aug. 26, 1947 4 Sheets-Sheet 3

FIG. 4



Inventor
C. L. ORR,

By Robt. C. Barry Attorney

Jan. 27, 1953 C. L. ORR 2,626,572

DAMPING DEVICE FOR RAILWAY CAR TRUCKS

Original Filed Aug. 26, 1947 4 Sheets-Sheet 4

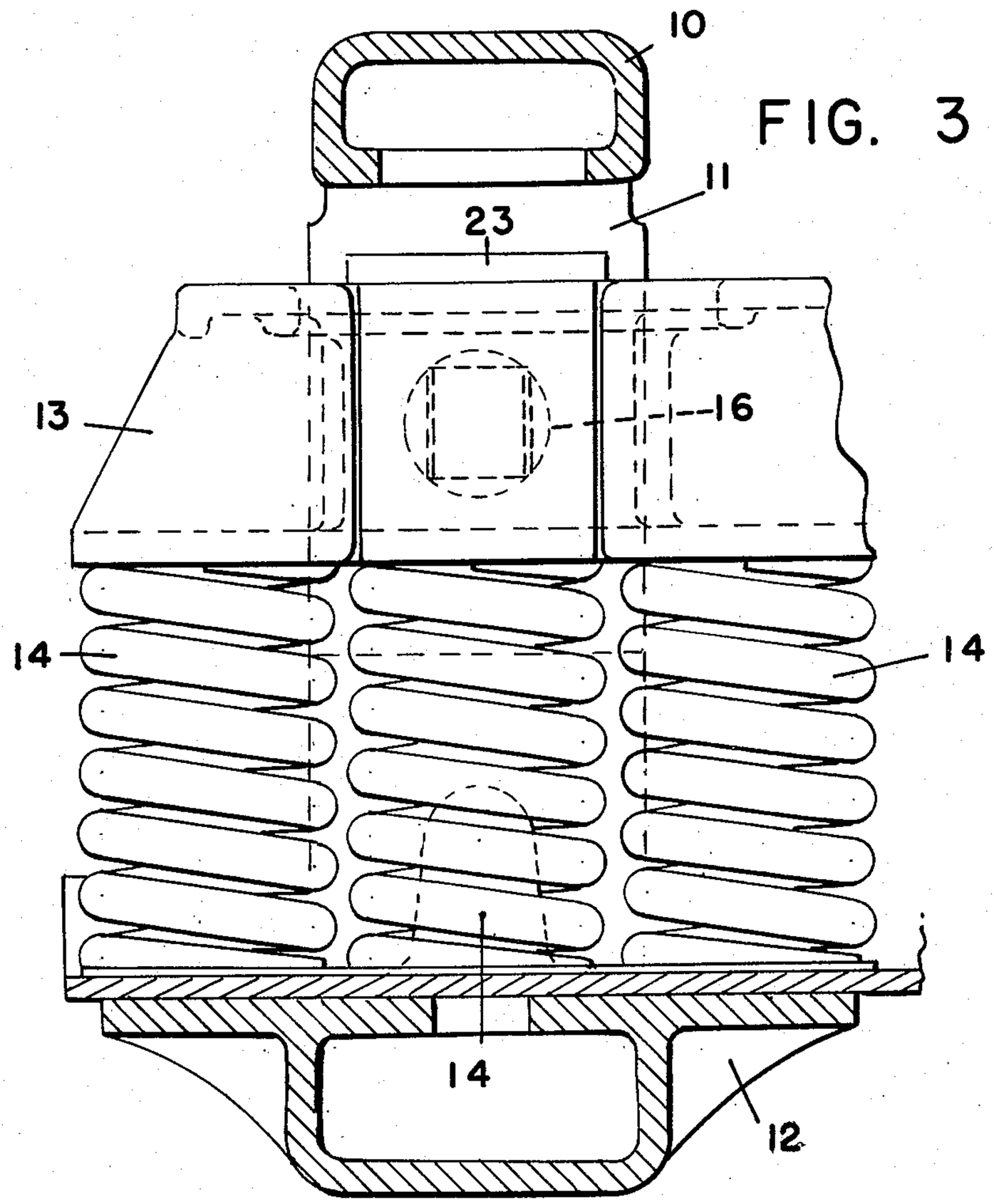
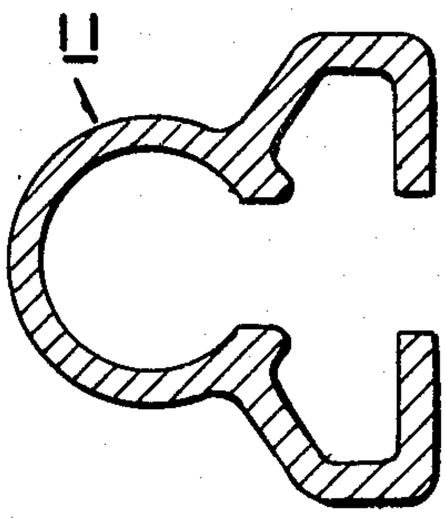


FIG. 3

FIG. 5



Inventor
C. L. ORR,

By Robt. E. Barry Attorney

Patented Jan. 27, 1953 2,626,572

UNITED STATES PATENT OFFICE

2,626,572

DAMPING DEVICE FOR RAILWAY CAR TRUCKS

Claude L. Orr, Columbus, Ohio, assignor to The Buckeye Steel Castings Company, Columbus, Ohio

Original application August 26, 1947, Serial No. 770,666. Divided and this application December 9, 1948, Serial No. 64,373

6 Claims. (Cl. 105—197)

1

This invention relates to damping devices for railway car trucks and more particularly to means for producing constant damping independent of the load carried by the bolster or bolsters of such trucks.

The present application is a division of application, Serial No. 770,666, filed August 26, 1947, now abandoned.

One of the objects of the invention is to provide a damping device including a vertical surface at a side wall of the bolster, cooperating with a vertical friction surface of a wedge which has an inclined surface slidably engaging a complementary surface of a guide column, the wedge being acted upon by a coil spring which bears on a portion of the side frame so as to produce constant damping of the bolster movements independent of the load carried by the bolster.

Another object of the invention is to combine with a structure of the above character, a slidably thrust member arranged within the bolster and cooperating with a shoe which forms said vertical surface of the bolster.

A still further object is to supply constant damping means adapted for trucks having four or more wheels and especially adapted for an equalized type of six or eight wheel truck.

With the foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings:

Fig. 1 is a side elevational view of a four-wheel truck provided with an embodiment of the invention.

Fig. 2 is an enlarged fragmentary view of a side frame of such a truck with parts shown in vertical section.

Fig. 3 is a transverse vertical sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a sectional view of a detail taken on the line 5—5 of Fig. 2.

Referring to Figs. 1 to 5, inclusive, a truss type side frame 8 is provided with a bolster opening 9 defined by a top member 10, spaced bolster guide columns 11, and a bottom or spring seat member 12. A bolster end 13 extends through the bolster opening and is supported on the seat 12 by coil springs 14. The bolster end (Fig. 2) is provided with a horizontally disposed transverse bore 15.

2

preferably cylindrical, to receive a horizontally slidable thrust member 16. At each end, the thrust member is provided with an arcuate convex surface 17 which cooperates with an arc-shaped concave surface 18, of a friction shoe 19, 20. These curved surfaces permit relative rocking movement between each shoe and the thrust member in a vertical plane longitudinally of the truck. Each friction shoe provides a vertical friction surface 21 at one side of the bolster.

At one side of the bolster opening, the vertical surface 21 of the shoe 19, bears against the vertical friction surface 22 of a friction wedge 23. The wedge is provided with an inclined surface 24 which slidably engages an inclined plate or web 25 formed by one of the bolster guide columns 11. A wedge actuating resilient means, such as a spring or coil 26, is positioned in the column at one end of the friction wedge and is arranged with its axis parallel with the inclined web 25. At one end, the wedge spring bears against a seat 27 provided at one end of the friction wedge. The opposite end of the coil spring bears against a spring seat member 28 which in turn is supported on the inclined tension portion 29 of the lower member 12 of the side frame, by means of a screw 30 threaded into the inclined member, at 31, and provided with a lock nut 32.

At the opposite side of the bolster opening, the vertical surface 21 of the friction shoe 20 bears against the vertical wall 33 of the guide column 11 at this side of the bolster opening, which column may be provided with a hardened wear plate 34, as shown.

From the above description it is evident that the pressure of the wedge spring 26 forces the friction wedge 23 into contact with the friction shoe 19 and this pressure is transmitted by the horizontal thrust member 16, to friction shoe 20 and the guide column 11 (having the vertical surface 33). Relative vertical movement between the bolster and side frame, due to oscillation of the bolster supporting springs 14, is damped by the sliding frictional forces at the vertical surface 21 of the friction shoes. It is also evident that the damping action is independent of the load carried by the bolster and that adequate provision is made for rocking movement in a vertical plane longitudinally of the side frame between said frame and the bolster end. This provision is desirable in four-wheel trucks because of track irregularities, and particularly so in equalized types of six and eight-wheel trucks in which the action of the equalizer produces rocking or tilting of the side frames relative to the

bolster. Although the drawings show a friction wedge and spring arranged at one side only of the bolster opening, it is evident that the arrangement can be made symmetrical, and a wedge and wedge spring can be placed at each side of the bolster opening if necessary or desirable.

To assemble the parts, the screw 30 is backed out of the threads in the inclined portion of the bottom or tension member to a lowered position, and spring seat 28, wedge spring 26 and friction wedge 23, are inserted in place from the upper portion of the bolster opening. Bolster end 13 with the thrust member 16 and friction shoes 19 and 20 in place, can then be applied in the usual manner through the lower portion 35 of the bloster opening and raised to the upper portion of such opening before the supporting springs 14 are applied. The bolster is then lowered onto the springs 14 and the assembly is completed by turning up screw 30 to produce the desired compression of wedge spring 26, after which the screw is locked by the nut 32. To dismantle the truck, the reverse of the above precedure is followed.

The screw and lock nut arrangement has the further advantage of providing means for adjusting the damping control of the device to accommodate for wear of parts after the truck has been in service.

From the foregoing it is believed that the construction, operation and advantages of my damping device may be readily understood and it is manifest that changes may be made in the details disclosed without departing from the spirit of the invention as expressed in the following claims.

What I claim and desire to secure by Letters Patent is:

1. A railway truck comprising a side frame having a bolster opening partially defined by opposed first and second guide columns, a bolster having an end portion extending into said opening, springs supporting the end portion of the bolster from the side frame, a thrust member slidable transversely within the bolster, friction shoes having articulate connection with the ends of the thrust member and provided with vertical surfaces, the vertical surface of one of the shoes slidably engaging the first guide column, the second guide column having an inclined surface converging toward the vertical surface of the other shoe, a wedge having a vertical surface contacting the last-mentioned vertical surface, said wedge having an inclined surface contacting the inclined surface of the second column, and resilient means bearing against the wedge and side frame for yieldingly urging the wedge against the last-mentioned vertical surface of one of said shoes and the inclined surface of the guide column.

2. A railway truck comprising a side frame having a bolster opening partially defined by opposed first and second guide columns, a bolster having an end portion extending into said opening, springs supporting the end portion of the bolster from the side frame, a thrust member slidable transversely within the bolster, friction shoes having articulate connection with the ends of the thrust member and provided with vertical surfaces, the vertical surface of one of the shoes slidably engaging the first guide column, the second guide column having an inclined surface converging toward the vertical surface of the other shoe, a wedge having a vertical surface contacting the last-mentioned vertical surface, said wedge having an inclined surface contacting the inclined surface of the second column, resilient means bearing against the wedge and side frame for yieldingly urging the wedge against the last-mentioned vertical surface of one of said shoes and the inclined surface of the guide column, and means for adjusting the force exerted by said resilient means.

3. A railway truck comprising, a side frame having a bolster opening partially defined by opposed guide columns, a bolster having an end portion extending into said opening, springs supporting the end portion of the bolster on the side frame, a thrust member slidable transversely in the bolster, a shoe connected to one end of the thrust member, a substantially vertical surface on said shoe engaging one guide column, a shoe connected to the other end of the thrust member, a substantially vertical surface on the second shoe, a wedge having a substantially vertical surface contacting the vertical surface on the second shoe, an inclined surface on the second guide column converging towards the vertical surface on the second shoe, an inclined surface on the wedge contacting the inclined surface of the second guide column, and resilient means bearing against the wedge and the side frame urging the wedge against the vertical surface on the second shoe and the inclined surface of the second guide column.

4. In a railway truck, a side frame having a bolster opening, guide columns defining the sides of said bolster opening, a bolster having an end portion extending into said opening, springs supporting the end portion of the bolster on the side frame, an elongated thrust member slidable transversely in the bolster, a convex surface at one end of the thrust member, a shoe having a concave pocket receiving the convex end of the thrust member, a vertical surface on said shoe engaging one guide column, a convex surface at the other end of the thrust member, a second shoe having a concave pocket therein receiving the second convex end of the thrust member, a vertical surface on the second shoe, a wedge having a vertical surface contacting the vertical surface on the second shoe, an inclined surface on the second guide column converging towards the vertical surface on the second shoe, an inclined surface on the wedge engaging the inclined surface on the second guide column, and a spring compressed between said wedge and the side frame urging the wedge against the vertical surface on the second shoe and the inclined surface on the second guide column.

5. A railway truck comprising, a side frame having a bolster opening partially defined by opposed guide columns, a bolster having an end portion extending into said opening, springs supporting the end portion of the bolster on the side frame, a thrust member slidable transversely in the bolster, a shoe bearing against one end of the thrust member, a substantially vertical surface on said shoe engaging one guide column, a shoe bearing against the other end of the thrust member, a substantially vertical surface on the second shoe, a wedge having a substantially vertical surface contacting the vertical surface on the second shoe, an inclined surface on the second guide column converging towards the vertical surface on the second shoe, an inclined surface on the wedge contacting the inclined surface of the second guide column, and a spring bearing against the wedge and the side frame urging the wedge against the vertical surface on the second

shoe and the inclined surface of the second guide column.

6. A railway truck comprising, a side frame having a bolster opening partially defined by opposed guide columns, a bolster having an end portion extending into said opening, springs supporting the end portion of the bolster on the side frame, a thrust member slidable transversely in the bolster, a shoe bearing on one end of the thrust member, a substantially vertical surface on said shoe engaging one guide column, a shoe bearing on the other end of the thrust member, a substantially vertical surface on the second shoe, a wedge having a substantially vertical surface contacting the vertical surface on the second shoe, an inclined surface on the second guide column converging towards the vertical surface on the second shoe, an inclined surface on the wedge contacting the inclined surface of the second guide column, a coil spring having one end thereof abutting against the wedge, a spring seat member engaging the opposite end of the coil spring, a member aligned with the axis of the coil spring in threaded engagement with the side frame abutting against said spring seat member and movable axially of the coil spring, and means for locking the threaded member relative to the side frame.

CLAUDE L. ORR.

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