Aug. 30, 1927. 1,640,963

W. C. SANDERS

RAILWAY CAR TRUCK

Filed Dec. 30 1926 2 Sheets-Sheet 1

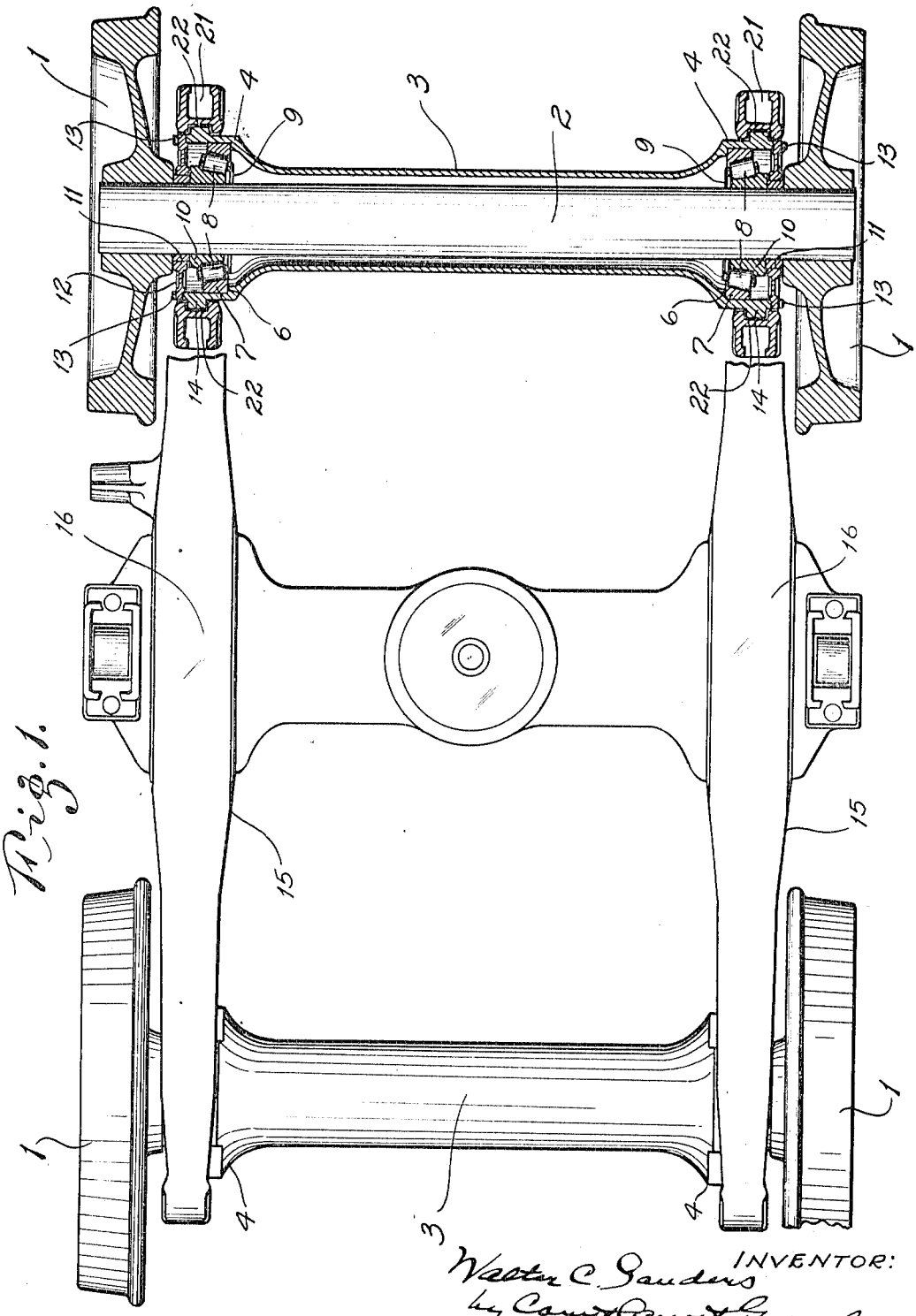


Fig. 1.

Walter C. Sanders INVENTOR:
by Connett Connett & Connolly
HIS ATTORNEYS.

Aug. 30, 1927. 1,640,963

W. C. SANDERS

RAILWAY CAR TRUCK

Filed Dec. 30 1926 2 Sheets-Sheet 2

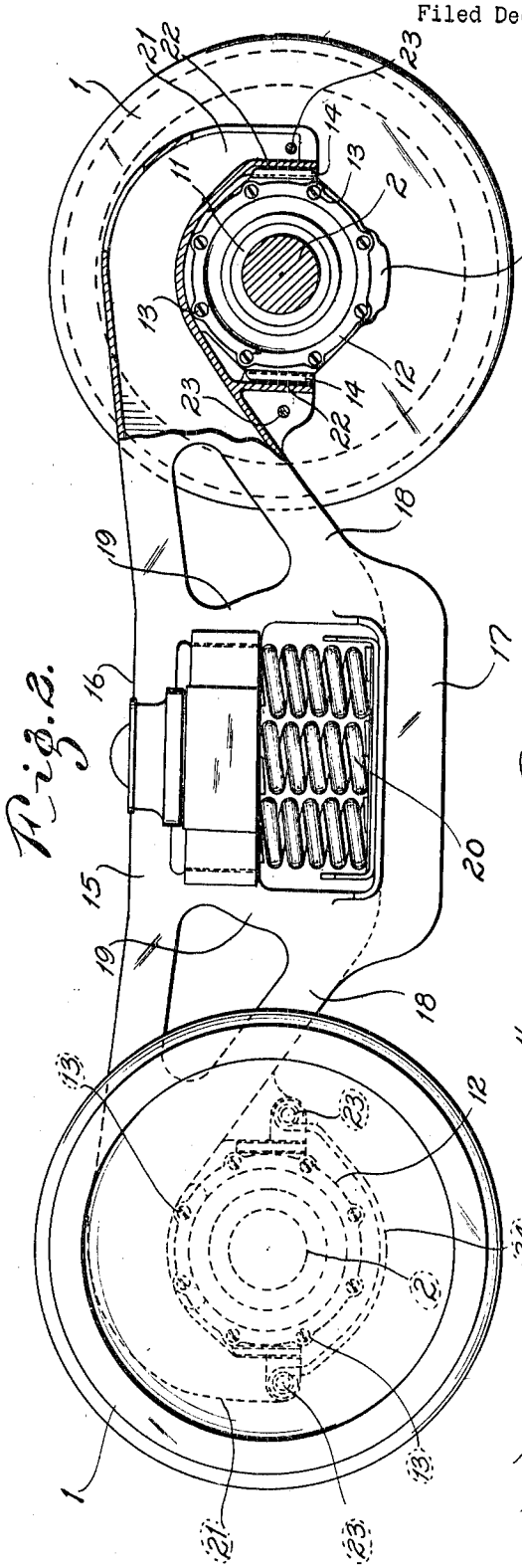


Fig. 2.

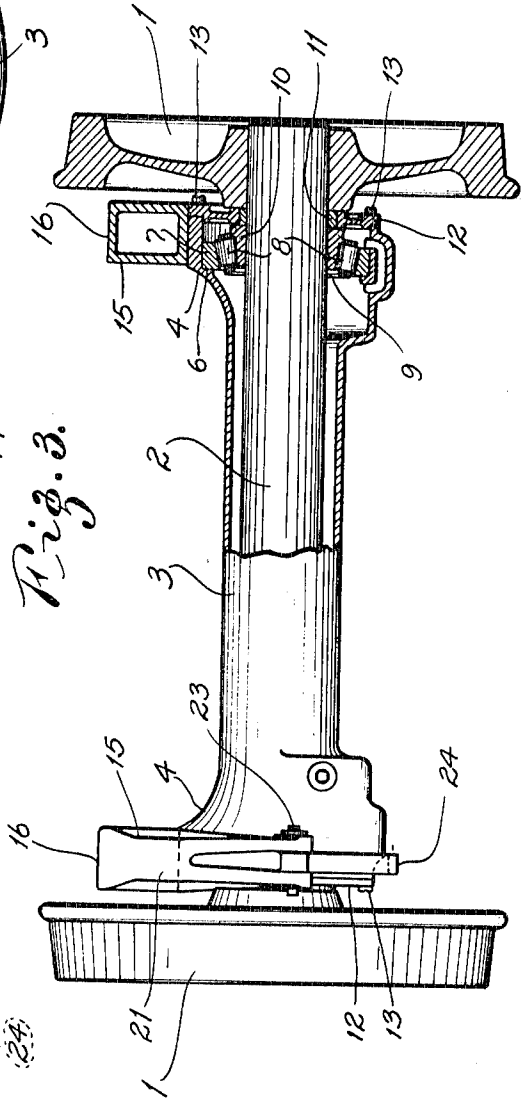


Fig. 3.

Walter C. Sanders INVENTOR.

by Cornell Cornell & Gravely

HIS ATTORNEYS

Patented Aug. 30, 1927. 1,640,963

UNITED STATES PATENT OFFICE.

WALTER C. SANDERS, OF CANTON, OHIO, ASSIGNOR TO THE TIMKEN ROLLER BEARING COMPANY, OF CANTON, OHIO, A CORPORATION OF OHIO.

RAILWAY-CAR TRUCK.

Application filed December 30, 1926. Serial No. 158,108.

This invention relates to railway car trucks. Railway car trucks of the kind commonly used at the present time have their journal boxes and side frames located beyond the wheels. In comparison with this so-called "outboard" type of truck there are many advantages in favor of trucks of the "inboard" type wherein the journal boxes and side frames are located inwardly from the car wheels, although such inboard trucks have certain disadvantage, such as decreasing the length of the spring base. The object of the present invention is to produce a truck which will realize the advantages of the inboard type and still minimize the disadvantages of such type. The invention consists in the constructions and arrangements of parts hereinafter described and claimed.

In the accompanying drawing, wherein like numerals refer to like parts wherever they occur,

Fig. 1 is a plan view of a railway car truck embodying my invention, one of the axle housings and the portion of the truck frame located adjacent thereto being shown in horizontal section;

Fig. 2 is a side view of said truck, portions thereof being shown broken away; and

Fig. 3 is an end view of the truck, one end of the axle housing and the parts of the truck adjacent thereto being shown in vertical section.

In the construction illustrated, wheels 1 are fixedly secured to solid axles 2. Surrounding each solid axle is a tubular housing 3 whose inner diameter is greater than the outer diameter of said axle. The end portions of such housing are flared outwardly and have cylindrical extensions 4 adapted to receive roller bearings. For this purpose, a shoulder 6 is formed at the inner end of the enlarged cylindrical chamber in the end of the housing, and against this shoulder abuts the thicker end of a conical cup or outer bearing member 7 that is seated in said chamber. A series of conical rollers 8 spaced by a suitable cage 9 cooperates with the bearing surface of said cup and also with the bearing surface of a cone or inner bearing member 10 provided therefor on the axle. A suitable collar or spacing member 11 is mounted on the axle between the hub of the wheel and the large end of the bearing cone. The end of the housing chamber is closed by means of a disk or plate 12 which fits over said collar and overlaps the end of said housing to which it is attached by cap screws 13 or the like and with the outer surface of which it is preferably flush. The bearing cone may be adjusted to take up wear without removing the closure plate 12 by shifting the wheel longitudinally of the shaft in the direction of the bearing.

Vertically disposed ribs or lugs 14 are provided on the sides of the housing near each end thereof, said lugs being of sufficient strength to resist the stresses imposed thereon by the side frames of the truck hereinafter described.

Each side frame 15 is preferably made as an integral casting. The middle portion thereof is of more or less conventional design comprising a longitudinal top member 16 and a bottom member 17 whose middle portion is substantially horizontal and is connected to the end portions of the top member by upwardly inclined portions 18 and is connected to the middle portion of the top member by substantially vertical strut members 19 arranged to form a chamber for the truck springs 20. Each of the side frames terminates in a downwardly opening yoke 21 of sufficient span to straddle the end of the axle housing. The yoke portion 21 of the side frame comprises an outer portion and an inner portion spaced therefrom but integrally connected thereto by an intermediate web portion or portions. The web portions in the downturned forks of the yoke are far enough back from the inner face thereof to form channels or grooves 22 of sufficient size to receive vertical lugs or ribs 14 provided therefor on the sides of the housing 3. In order to permit a slight rocking of the side frame relative to the housing, the fit between the housing rib and the channel or groove 22 formed in the inner surface of the yoke should not be tight but should afford a slight clearance, or, if the surfaces contact, one or both of the contacting surfaces should be convexed. The ends of the yoke are provided with pins 23 to which are secured the ends of a strap 24 that passes underneath the housing and serves to hold the side frames and housings together.

By the arrangement described, very strong joints are made between the housing and the side frames, which joints are not only able

to resist the great stresses that are transmitted from the housings to the side frames and vice versa, but will at the same time afford all the flexibility necessary to permit the several members of the truck to accommodate themselves to service conditions such as swaying of the car body, rounding curves, passing low joints in the track and the like. Besides, the construction has the advantage of enabling the side frames to be spaced apart practically as far as the wheels will permit, thus obtaining considerable increase in the length of the spring base in comparison with other inboard trucks; or, permitting greater clearance between the wheels and the cap screws that hold the closure plate on the end of the housing and thus facilitating the manipulation thereof. It also permits the use of wheels with hubs that extend inwardly further than would be practicable in earlier constructions.

What I claim is:

1. An inboard railway truck comprising axle housings and truck side frames having yokes that straddle said housings, said yokes having vertical channels in their inner surfaces and said housings having ribs engaging said channels.

2. An inboard railway truck comprising axle housings that are provided with a vertically arranged lug on each side of each end thereof and truck side frames having downwardly opening yokes with a vertically arranged channel in the inner surface thereof, each yoke straddling the end portion of a housing with the ribs of the housings engaging the channels of the yokes in such manner as to permit limited rocking of the side frames relative to the housings.

3. An inboard railway truck comprising axle housings with enlarged end portions and vertically arranged lugs on the sides thereof and truck side frames having yokes that straddle said housings and have vertical channels to receive said ribs, said side frames extending beyond the ends of said housings.

4. An inboard truck comprising axles having wheels fixed thereto, tubular housings surrounding the portion of each axle between its wheels, conical roller bearings interposed between each axle and the end portions of its housing and a closure for each end of a housing, and side frames with downwardly opening yokes that straddle the end portions of said housings and closures, each fork of each yoke having a vertically arranged channel, and vertically disposed ribs on the end portions of said housings that interlock with said channels to resist stresses endwise of the housing and permit rocking movement of the side frames relative to said housings.

Signed at Canton, Ohio, this 11th day of December, 1926.

WALTER C. SANDERS.