Oct. 21, 1969 J. H. CARTER 3,473,259

COMBINATION TOY WHEEL AND BEARING CONSTRUCTION

Filed Oct. 22, 1965

Fig. 1

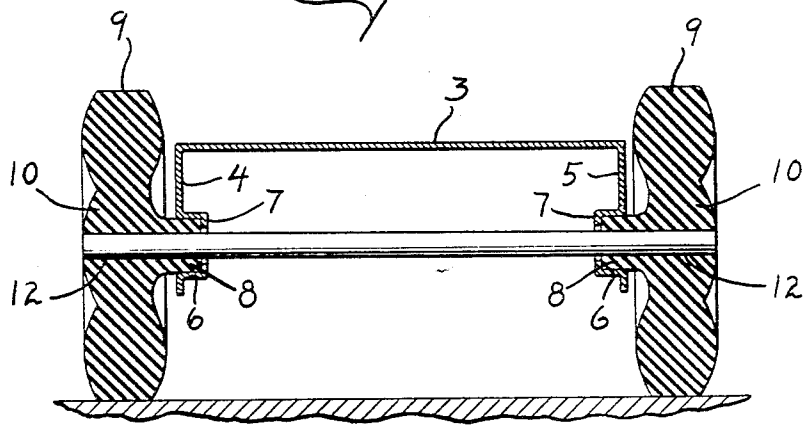
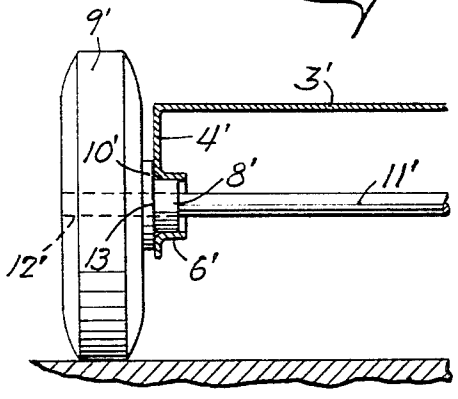


Fig. 2



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COMBINATION TOY WHEEL AND BEARING CONSTRUCTION

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ABSTRACT OF THE DISCLOSURE

In the present combination toy vehicle wheel and journal bearing construction, the two side walls of the sheet metal chassis have inwardly extending coaxially aligned tubular cylindrical bearing portions and the axle that extends through these bearing portions carries molded rubber wheels with inwardly extending integral cylindrical bearing portions in concentric relation to the wheel and axle having a quiet running fit in these bearings, endwise movement of the axle being limited by engagement of the cylindrical bearing portions on the wheels with means integral with the journal bearings.

This invention relates to toy vehicles and is more particularly concerned with a novel combination toy vehicle wheel and journal bearing construction.

The principal object of my invention is to provide with a substantially cheaper bearing construction, a toy having characteristics which spell quality and are to be found usually only in the more expensive toys, the point being that the sound deadening action obtained with the present construction avoids the tinny, metallic sound usually associated with cheaper toys when the wheels are brought forcibly into contact with the floor.

The salient feature of the present invention is the provision of a reduced hub portion on each of the molded rubber wheels which by radial and end thrust bearing engagement in extruded bearings provided on the side walls of the toy chassis give silent bearing operation while spacing the wheels a predetermined distance from the sides of the chassis to limit end-play so that there is never any danger of wheels rubbing against the sides of the chassis and marring the finish.

The invention is illustrated in the accompanying drawing, in which:

FIG. 1 is a cross-section through a toy chassis showing a pair of wheels of the improved form providing bearing portions thereon as a part of my novel combination toy wheel and bearing construction, and

FIG. 2 is a related sectional detail showing a modified or alternative construction.

Similar reference numerals are applied in these two views.

Referring first to FIG. 1, the reference numeral **3** designates a sheet metal chassis for a toy vehicle, having longitudinally extending flanges **4** and **5** provided in spaced parallel relationship along its opposite sides, cylindrical portions **6** of which are extruded inwardly to define bearings, the inner ends **7** of which are flanged radially inwardly to provide end thrust bearing surfaces on the outer sides thereof for abutment with the inner ends of the reduced hub portions **8** of the molded rubber wheels **9** which have a free running fit in the bearings **6**. The wheels **9** both have their main hub portions **10** mounted with a press fit on the opposite ends of the axle **11** in center holes **12**. With this construction it is obvious that one of the wheels **9** can be mounted on one end

of the axle prior to the final assembling operation, when the other wheel is mounted on the other end of the axle with the press fit, thereby reducing the overall production cost as compared with press fitting both wheels onto opposite ends of the axle **11** at the time of completing the assembly.

Referring to FIG. 2, showing a modified or alternative construction, the sheet metal toy vehicle chassis **3'** has inwardly extruded cylindrical bearings **6'** in which the reduced cylindrical portions **8'** of the hubs **10'** of molded rubber wheels **9'** have a free running fit, while the annular shoulders **13**, which are defined on the hubs **10'** at the outer ends of the reduced bearing portions **8'**, serve by abutment with the side walls **4'** on the chassis to assume end thrust and keep the wheels **9'** in a desired spaced relation to the sides of the chassis. Here again, the axle **11'** will have one of the two wheels **9'** secured to one end thereof at the outset with a press fit in the center hole **12'**, the other wheel being pressed onto the other end of the axle at the time of completion of the assembly.

In operation, it is clear that with both constructions the toy will be free of any tinny or metallic sound when placed on the floor forcibly, due to the sound deadening effect of the present improved bearing construction, and, whereas this silent operation is obtained at substantially lower cost with the present construction, such operation is usually associated in the minds of toy purchasers only with high priced, top quality toys.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention.

I claim:

1. In a sound deadening wheel and journal bearing construction for a sheet metal toy vehicle, an integral sheet metal chassis having parallel side walls with coaxially aligned inwardly extending cylindrical tubular portions defining journal bearings, an axle extending centrally through said bearings having molded rubber wheels mounted on its opposite ends on opposite sides of the chassis, each of the wheels having extending from its inner side an integral cylindrical bearing portion in concentric relation to the wheel and axle having a running fit in one of said journal bearings, and means integral with said journal bearings limiting endwise movement of said axle, whereby to maintain evenly spaced relationship of said wheels relative to the opposite sides of said chassis.

2. A construction as set forth in claim **1**, wherein the last mentioned means comprises annular shoulders defined in said bearings at their inner ends, the cylindrical bearing portions of said wheels having abutment with said annular shoulders to assume end thrust and also maintain the wheels in a pre-determined spaced relation to the sides of the chassis.

3. A construction as set forth in claim **1** wherein the last mentioned means comprises annular shoulders provided at the outer ends of said cylindrical bearing portions arranged to have abutment with the side walls of said chassis to assume end thrust and also maintain a pre-determined spaced relationship between the wheels and the sides of said chassis.

References Cited

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