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PLASTIC AXLE BEARINGS FOR USE ON TOY VEHICLES

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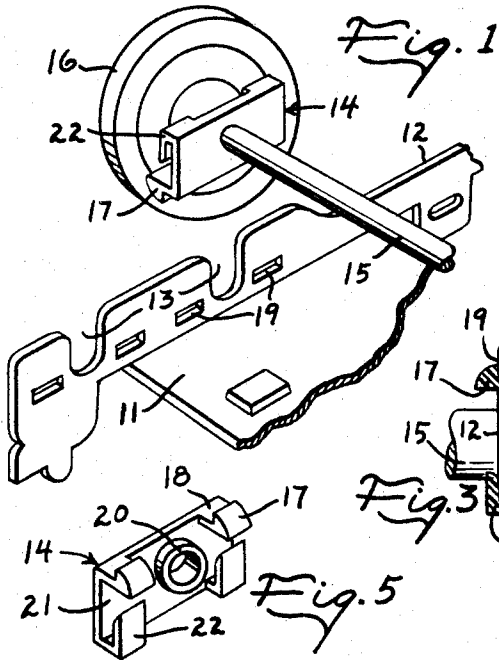


Fig. 1

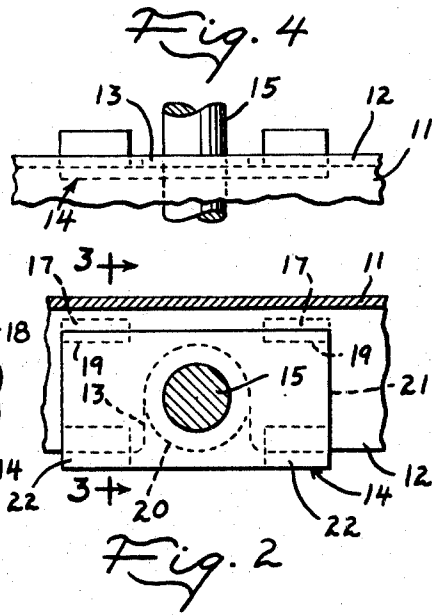


Fig. 4

Fig. 2

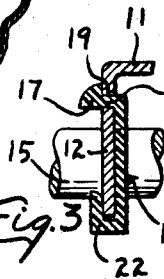


Fig. 3

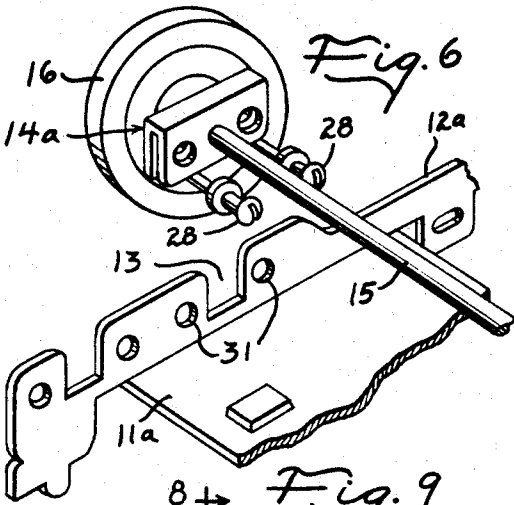


Fig. 6

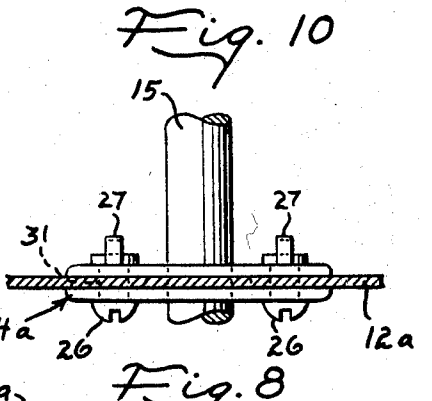


Fig. 10

Fig. 8

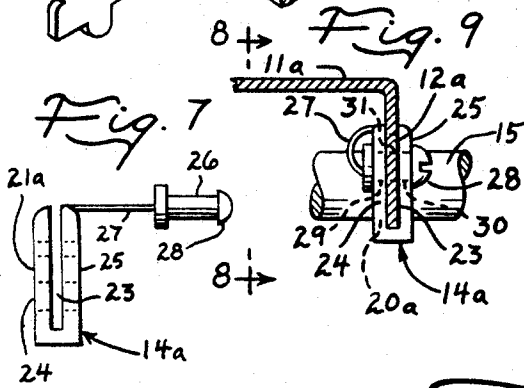


Fig. 7

Fig. 9

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PLASTIC AXLE BEARINGS FOR USE ON TOY VEHICLES

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This invention relates to plastic bearings for use on toy vehicles, the principal advantages derived therefrom being, first of all, greater economy and greater durability, and, secondly, improved performance of the final toy vehicle from the standpoint of the sound deadening action obtained with these bearings so that there are no tinny or metallic sounds given off as with other toys when the wheels thereof are banged onto the floor.

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

FIG. 1 is a perspective view of the toy vehicle chassis looking at the bottom thereof, showing an axle about to be installed with the present improved type of plastic bearings;

FIGS. 2, 3, and 4, are, respectively, a side view, an end view, and top view of the improved bearing showing it installed, FIG. 3 being a view in section on the line 3-3 of FIG. 2;

FIG. 5 is a perspective view of the bearing by itself;

FIG. 6 is a view similar to FIG. 1 showing another form of bearing like that seen in end elevation in FIG. 7, and

FIGS. 8, 9, and 10, are, respectively, a side view, an end view, and a top view of the bearing, showing it installed, FIG. 10 being taken on line 10-10 of FIG. 8, but showing the bearing on the other side of the vehicle.

Similar reference numerals are applied to corresponding parts throughout the views.

Referring to the drawing and first to FIGS. 1 through 5, the reference numeral 11 designates the sheet metal chassis of the toy vehicle having longitudinally extending flanges 12 in spaced parallel relation along its opposite sides, in which generally U-shaped slots 13 are provided to accommodate the plastic bearings of my invention, indicated by the reference numeral 14, to mount the axles 15 on the chassis, with one of the wheels 16 assembled thereon, the other wheel being applied to the other end of each axle after its insertion through the bearings 14, unless both bearings 14 are assembled on the axle before the wheels are both applied thereto. The plastic bearings 14 are not only cheaper than what were used previously but are better, actually upgrading the final toy vehicle considerably by virtue of their sound deadening action, thereby avoiding the tinny or metallic sounds given by other toys when the wheels are banged onto the floor.

The bearings 14 are preferably of resilient polyethylene, although certain rubbers or any other similar resilient flexible plastic material may be used, it being important that the bearings be expansible and compressible because these characteristics are needed in the final assembling operation when the enlarged ends 17 of the lugs or studs 18 provided on the bearings are forced through slots 19 provided in the flanges 12, the expansion of the enlarged end 17 of the lugs 18 serving to anchor the bearings so securely that a child is not at all apt to succeed in dislodging them and they become really permanent parts of the assembly for the life of the toy. A tubular projection 20 in the center of the rectangular body 21 of each bearing receives the axle 15 and is entered in the slot 13 in the flange 12 so as to engage the semi-circular upper end of the slot for solid support at the same time that a pair of hook-shaped lugs 22 provided on the lower corners of the rectangular body 21 of the bearing hook

over the lower edge of flange 12 on opposite sides of the slot 13 as seen in FIGS. 2 and 3 to further make the bearing rigid with the chassis. It is after this much of the assembling operation is completed that the studs or lugs 18 are entered in the slots 19 to complete the assembly.

In operation, the axle 15 may come to the assembly line with one of the wheels 16 assembled thereon, the other wheel being assembled on the other end of the axle after the two bearings 14 have been mounted on the chassis 11 from the inner side of the flanges 12 and the axle 15 is entered through the two bearings 20. If desired, the two bearings 14 may be applied to the axles 15 in opposed relationship to one another before the wheels 16 are applied to the opposite ends of the axle, thus enabling the axles 15 to come to the assembly line with their wheels 16 assembled thereon, and in that way a further saving in cost may be realized over prior construction where axles had to be assembled in the bearings on the chassis first before the wheels could be applied to the opposite ends or at least one end. The sound deadening effect obtained with these plastic bearings 14 is highly desirable and a welcome change from the tinny or metallic sounds previously given by even the more expensive toys. The present construction is actually much cheaper than those used heretofore, and is also more durable.

In FIGS. 6 to 10, I have shown another plastic bearing 14a which can be used in the same way as the bearing 14, namely, assembled on the chassis 11a prior to the insertion of the axle 15 or assembled on the axle 15 before the wheels. These bearings 14a are of elongated rectangular form, as indicated at 21a in FIG. 8 but U-shaped in cross-section, as indicated at 23 in FIGS. 7 and 9, to accommodate the flange 12a therein. Registering bearing holes 20a are provided in the inner and outer walls 24 and 25 of the bearing to receive the axle 15, the axle extending through registering slots 13 provided in the two flanges 12a. It is, therefore, a very simple matter to assemble these bearings on the two flanges 12a of the chassis, as it is necessary only to enter the flanges between the two walls 24 and 25, after which a pair of plastic rivets or studs 26, which are connected by thin easily flexible webs 27 with the body 21a of the bearing, have their slotted headed ends 28 compressed and forced through registering holes 29 and 30 provided in the walls 24 and 25, respectively, and through registering holes 31 provided in the flange 12a on opposite sides of the slot 13a. The same results, generally speaking, are obtainable with this construction as with the one previously described.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The appended claims have been drawn to cover all legitimate modifications and adaptations.

I claim:

1. An axle bearing construction for toy vehicles comprising, in combination, a bearing support having a generally rectangular slot provided therein opening from one edge thereof for entry of an axle therein in transverse relationship to said support, a generally rectangular bearing member of flexible, resilient, non-metallic bearing material having a substantially central bearing hole provided therein to receive the axle for rotation, means at two corners of said rectangular bearing member having abutment with the edge of said support on opposite sides of said slot for support of said bearing thereon, and means at the other two corners of said rectangular bearing member for anchoring said bearing member to said support and against axial displacement with respect to said axle.

2. An axle bearing construction as set forth in claim 1 wherein the bearing member has a cylindrical projection provided thereon on one side in concentric relation to said bearing hole and of a diameter to fit in said slot

to further support said bearing member on said support.

3. An axle bearing construction as set forth in claim 1 wherein the bearing member has a cylindrical projection provided thereon on one side in concentric relation to said bearing hole and of a diameter to fit in said slot to further support said bearing member on said support, the inner end of said slot being semi-circular and having semi-circular bearing engagement on said projection.

4. An axle bearing construction as set forth in claim 1 wherein the means at the first mentioned corners of said rectangular bearing member having abutment with the edge of said support on opposite sides of said slot comprises hook-shaped lugs in which the edge portion of said bearing support is engaged.

5. An axle bearing construction as set forth in claim 1 wherein the anchoring means at the last mentioned corners of said rectangular bearing member comprises right angle projections of compressible resilient material arranged to be forced into holes provided in register therewith on said support.

6. An axle bearing construction as set forth in claim 1 wherein the anchoring means at the last mentioned corners of said rectangular bearing member comprises right angle projections of compressible resilient material arranged to be forced into holes provided in register therewith on said support, the projections having enlarged outer ends which when they protrude from the openings provided in said support serve to anchor the projections against displacement.

7. A axle bearing construction as set forth in claim 1 wherein the bearing member is of generally U-shaped cross-section to accommodate the bearing support between the two arms of the U, the edge portion of said support bearing against the cross-portion of the U.

8. An axle bearing construction as set forth in claim 1 wherein the bearing member is of generally U-shaped cross-section to accommodate the bearing support between the two arms of the U, the edge portion of said support bearing against the cross-portion of the U, the anchoring means comprising rivets of compressible resilient material arranged to be forced through registering holes provided therefor in the two arms of the U and through holes in register therewith provided in the support.

9. An axle bearing construction as set forth in claim 1 wherein the bearing member is of generally U-shaped cross-section to accommodate the bearing support between the two arms of the U, the edge portion of said support bearing against the cross-portion of the U, the anchoring means comprising rivets of compressible resilient material arranged to be forced through registering holes provided therefor in the two arms of the U and through holes in register therewith provided in the support, the rivets having enlarged head portions which when protruding from the bearing member after being forced through the registering holes provided therein prevent displacement from said bearing member.

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