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TOY AXLE AND WHEEL ASSEMBLY

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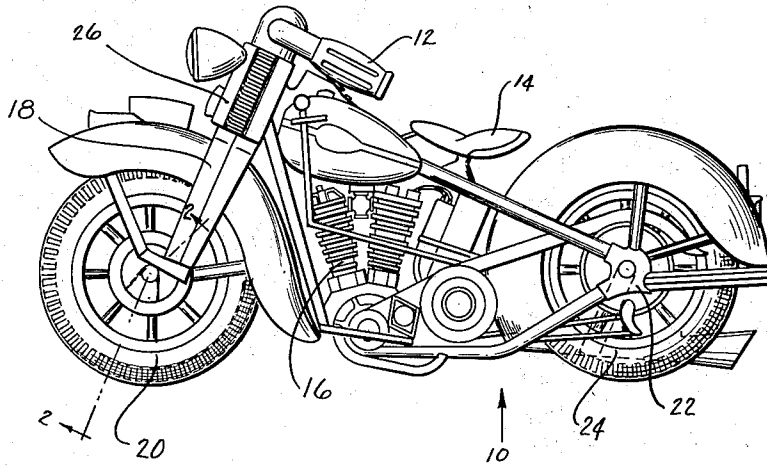


FIG. 1

FIG. 2

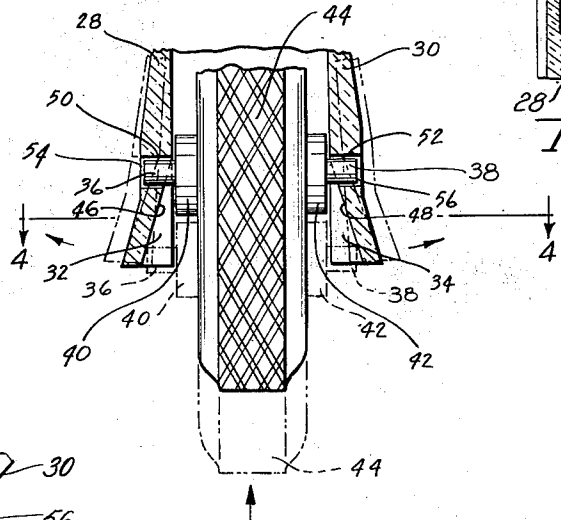
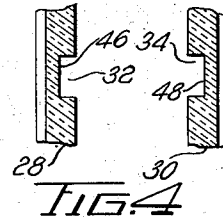
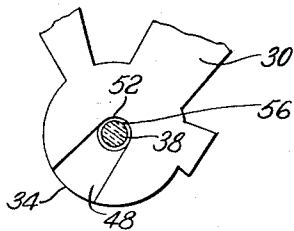


FIG. 3



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TOY AXLE AND WHEEL ASSEMBLY

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The present invention relates to a toy vehicle frame construction.

The present invention contemplates the provision of a frame for a wheeling toy, exemplified by a two-wheel motorcycle, so constructed and arranged that a wheel assembly, comprising a wheel and axle therefor, may be readily mounted on the frame against removal by the insertion of the assembly between the sides of the frame which are sufficiently resilient to be flexed from normal position for the assembly operation.

The toy here contemplated is molded from a flexible material which is comparatively stiff, such a plastic, as by extrusion, so that the wheel assembly may be pressed between the wheel carrying supports to thereby push them apart a sufficient amount to permit the axle of the assembly to pass them so that it becomes seated in recesses in the supports which snap into place to hold the assembly for free rotation therein.

The present invention contemplates the provision of internal grooves in the support which grooves and supports are inclined upwardly and inwardly and communicate with the recesses so that the wheel assembly may be readily slid in the grooves to flex the supports and thereby permit the wheel assembly to be positioned in the recesses, whereupon the support snap inwardly and hold the wheel axle in position for rotation in the recesses.

It will be understood of course that the toy may be formed with such ornamental features as give it the appearance of the vehicle which it simulates.

The present invention contemplates the provision of a toy frame in which a wheel assembly may be easily and relatively inexpensively mounted thereon without the requirement of costly elements of construction or methods of assembly.

These, other and further objects and advantages of the present invention will be apparent from the description which follows and the drawing appended thereto, in which

Fig. 1 is a side elevation of a toy constructed in accordance with my invention;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a view toward right of Fig. 2;

Fig. 4 is a section on the line 4—4 of Fig. 2.

Referring now to the drawing, the invention of the present application is applied to a toy vehicle, illustrated by the motorcycle 10, though it will be understood that it may be applied to any other type of vehicle having wheels which are mounted for rotation in the frame.

Although many of the ornamental and functional features of a motorcycle are shown, such

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as the handle bar 12, seat 14, motor 16 and the like, it will, of course, be understood that they form no part of the invention which is limited to the construction of the frame and its combination with the wheel assembly as I shall further describe.

Further, in order to understand the invention, it will be necessary only to illustrate and describe the construction of the front fork 18 and the mounting of the front wheel assembly 20 therein, it being understood that the rear fork 22 and the rear wheel assembly 24 is similar thereto and functions in a like manner.

The front fork 18 is preferably U-shaped and extends down from the head stock 26 and comprises the diverging sides 28 and 30, which are formed from a relatively rigid but flexible material, such as an extruded plastic (see Fig. 2).

On the inside of each side 28 and 30, I form the upwardly tapering grooves 32 and 34 in which the axle 36 and 38, extending from the enlarged spacing lugs 40 and 42 on each side of the wheel 44, are inserted at the bottom of or entrance to the grooves, as illustrated by the broken lines of Fig. 2.

At the entrance to the groove, the distance between the inner walls thereof 46 and 48 is just equal to the distance between the outside ends of the axles 36 and 38. Thus the wheel assembly may be inserted into the grooves between the sides 28 and 30 of the toy frame, here the forks 18 and 22 of the motorcycle.

The inner walls 46 and 48 of the grooves taper inwardly and upwardly to the ends 50 and 52 of the grooves 32 and 34 so that these grooves become uniformly narrower from their lower entrance to their narrowest part which is located to communicate with the aligned holes or recesses 54 and 56 in each side 28 and 30. These holes serve as bearings in which the wheel axles 36 and 38 are inserted as will be described.

Thus, since the grooves uniformly become narrow, the axles 36 and 38 separate the sides 28 and 30 to flex them from normal as the axle and wheel assembly is forced upward. This separation is possible because of the flexibility of the material used to form the toy and readily accomplished because of its comparative rigidity.

When the axles 36 and 38 are brought into alignment with the holes 54 and 56, flexure of the sides is relieved and the axles move thereinto, permitting the sides 28 and 30 to snap back into normal position and hold the wheel assembly in place so that it can freely rotate in position in the frame bearings constituted by the holes or recesses.

The distance between the holes 54 and 56, when the sides 28 and 30 are normally unflexed, is such with respect to the length of the axle of the wheel assembly that although the wheel can freely rotate in the bearings formed in the sides of the frame yet the wheel assembly cannot ordinarily be displaced and removed from the frame.

Such "snap-in" assembly construction provides for relatively fast and inexpensive assembly of a toy, all parts of which are comparatively cheap and readily molded from a flexible material, such as an extruded plastic. It will be apparent that the frame of the toy and the wheel assemblies each form separate elements which may be inexpensively molded or extruded.

While I have described a preferred embodiment of my invention, it will be understood that I do not intend to be limited thereto since changes and modifications thereof will occur to those skilled in the art without departing from the spirit and scope of the invention as defined by the appended claims.

I claim:

1. In a toy vehicle, a frame having spaced downwardly extending sides and formed from a rigid material of sufficient flexibility to permit the said sides to be distended, each said side having a groove open at the entrance thereto at the bottom end of the side and closed at the upper end of the groove, the inner wall of said groove inclining inwardly and upwardly, each groove widest at its entrance and uniformly narrowing to the closed end thereof, each side having an opening therethrough communicating with the groove therein at the narrowest part of the groove, each opening being opposite the other opening and a wheel assembly comprising a wheel and an axle on each side thereof, the width between each side end of the axle being equal to the width between the inner walls of the grooves at the entrance to the grooves.

2. In a toy vehicle, a frame having sides spaced from each other a selected distance, each said side having a groove therein closed at the upper

end thereof, the grooves being aligned and being widest at the lower end thereof and uniformly narrowing inwardly to the upper end thereof, each said side having an opening therethrough extending into the narrowest part of the groove in the side and a wheel and axle assembly, the distance between the inside of the grooves at the lower end thereof being greater than the length of the axle and the distance between the inside of the grooves at the upper end thereof being less than the length of the axle, the sides being of such resiliency as to be flexed apart upon moving the wheel and axle assembly upwardly in the groove from the lower part thereof to the upper part thereof.

3. In a toy vehicle, a frame having sides spaced from each other, a groove in each side and closed at the upper end thereof, the grooves being aligned and being widest at the lower ends thereof and becoming uniformly narrower therealong and being narrowest at the upper ends thereof, each side having an opening therethrough extending into the narrowest part of the groove in the said side, the said openings being in axial alignment, and a wheel and axle assembly, the sides being of such resiliency and the grooves of such shape with respect to the length of the assembly axis that said sides are separated from normal upon the movement of the wheel and axle assembly upwardly from the lower part of the grooves to the upper part of the grooves, said sides returning to normal position upon the axle being brought into alignment with the openings to relieve flexure of the sides whereby the axle is snapped into the openings.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,958,485	Marcus	May 15, 1934