

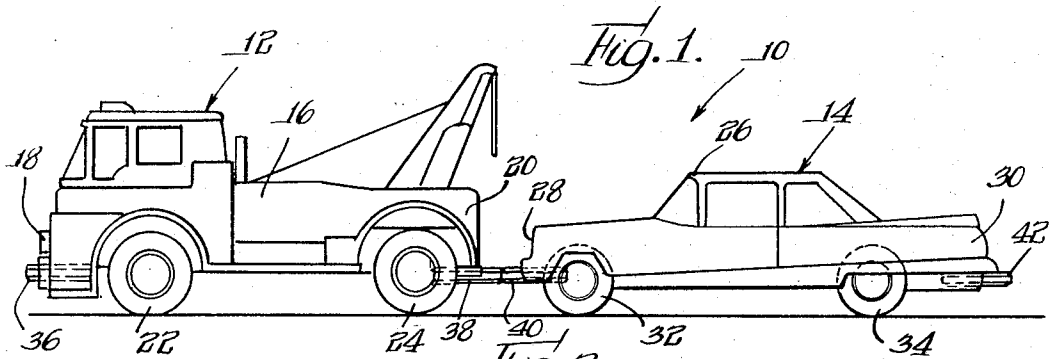
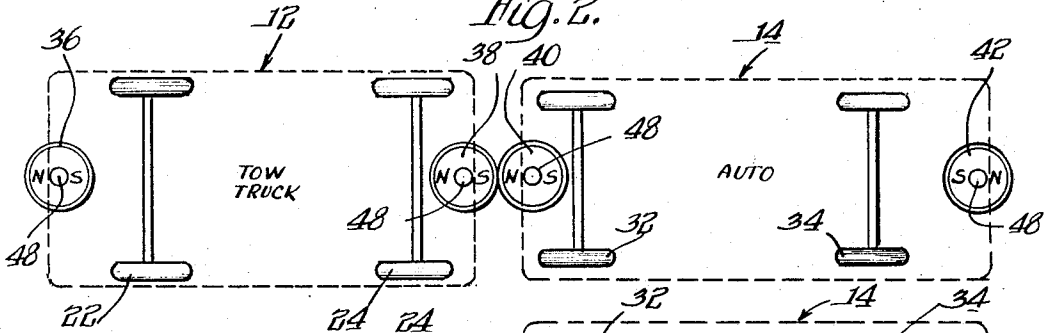
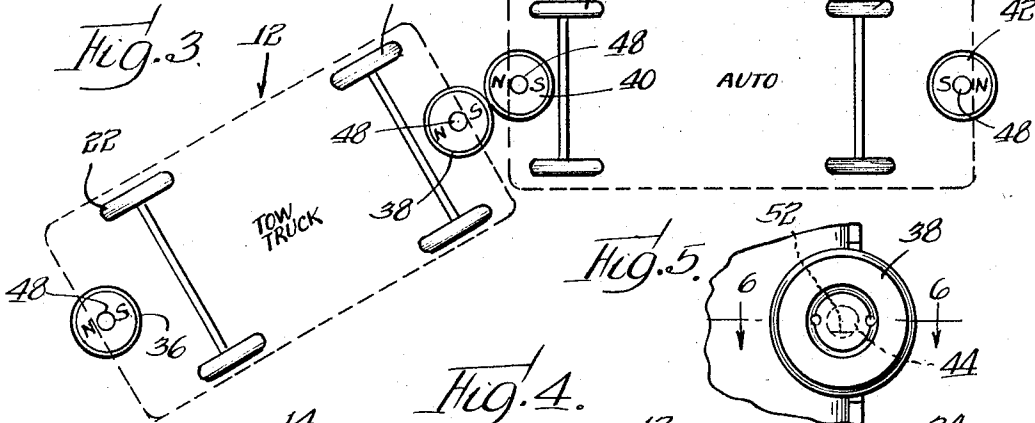
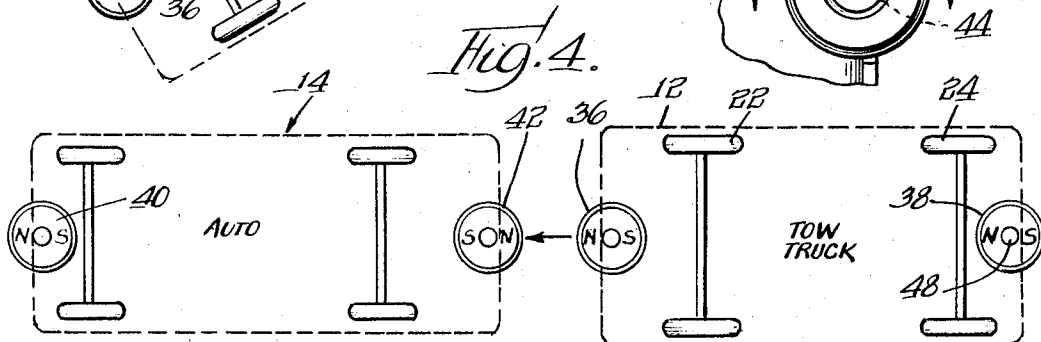
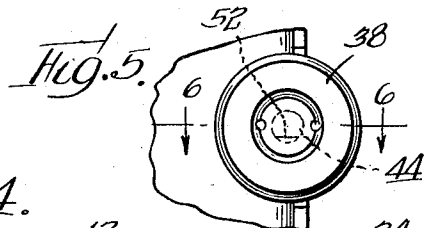
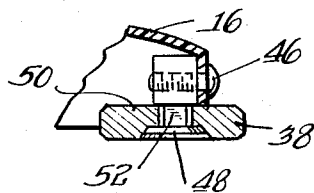
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MAGNETIC TOY VEHICLE SET

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1

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MAGNETIC TOY VEHICLE SET
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The present invention relates to a novel toy, and more specifically to a novel toy wheeled vehicle set.

While it is to be understood that toy vehicles of the general type contemplated herein may be produced in many different forms and may, for example, be made to simulate cars, trucks, trains and the like, a vehicle set comprising a toy truck and a toy car will be disclosed and described herein in order to facilitate the present disclosure.

It is an important object of the present invention to provide a novel toy vehicle set having means for releasably coupling the vehicles in a manner for enabling one vehicle to be used selectively for either pushing or pulling another vehicle.

A more specific object of the present invention is to provide a novel toy vehicle set constructed for enabling one vehicle to be used for selectively either magnetically pulling or pushing another vehicle.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings wherein;

FIG. 1 is a side elevational view of a toy vehicle set incorporating features of the present invention;

FIG. 2 is a bottom plan view of the set shown in FIG. 1;

FIG. 3 is similar to FIG. 2 but shows the relationship between the vehicles when the vehicles are moved so as to turn a corner;

FIG. 4 is a bottom plan view similar to FIG. 3 but showing the position of the vehicles reversed so that one vehicle is used for pushing rather than pulling the other vehicle;

FIG. 5 is an enlarged fragmentary bottom plan view showing a permanent magnet incorporated in the vehicle in accordance with the present invention; and

FIG. 6 is a fragmentary sectional view taken along line 6 in FIG. 5.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a toy vehicle set 10 incorporating features of the present invention comprises a first toy wheel vehicle 12 and a second toy wheel vehicle 14. As previously indicated, the vehicles 12 and 14 may be produced in any desired shape so as to simulate any desired full-sized vehicle and, if desired, more than two vehicles may be included in the set. In the embodiment shown the vehicle 12 is provided with a body 16 in the shape of a tow truck having a forward end 18 and a rear end 20. Front and rear wheel sets 22 and 24 respectively are mounted on the truck body 16 in any desired manner.

In the embodiment shown the vehicle 14 is provided with a body 26 in the form of a passenger car having front and rear ends 28 and 30. This vehicle is also provided with front and rear wheel sets 32 and 34 connected with the body in any desired manner.

In accordance with a feature of the present invention, permanent magnet elements are connected with the vehicles 12 and 14 in a manner for selectively enabling the vehicles to be magnetically coupled together and for enabling one of the vehicles to be used for magnetically pushing the other without a mechanical connection between the two. More specifically, permanent magnet elements 36 and 38 are connected with the forward and rear end portion of the vehicle 12 and respectively project therefrom and provide forward and rear bumpers. Ad-

2

ditional permanent magnet elements 40 and 42 are respectively connected with forward and rear portions of the vehicle 14 and project therefrom for providing forward and rear bumpers.

The magnetic elements are preferably secured to the vehicle bodies by identical means which, as shown best in FIGS. 5 and 6, comprises a pin 44 secured against an inner surface of an end of a vehicle body by a screw 46. Preferably, each of the magnetic elements has an annular configuration and its associated pin 44 extends through a central aperture in the magnetic element and has a lower end portion 48 enlarged for retaining the magnetic element. Preferably, an intermediate portion 50 of each pin and aperture through a magnetic element have complementary non-circular or flat portions 52 for enabling the magnetic element to be secured against rotation and in a predetermined position with respect to the vehicle body.

As indicated in FIGS. 2-4, the magnetic elements 36 and 38 are oriented with respect to the vehicle body 16 so that unlike poles thereof respectively project forwardly and rearwardly of the vehicle. In the embodiment shown, the north pole indicated by the letter N of the magnetic element 36 projects forwardly of the vehicle body while the south pole indicated by the letter S of the magnetic element 38 projects rearwardly of the vehicle body. At the same time it is to be noted that the magnetic elements 40 and 42 are arranged so that like poles respectively project forwardly and rearwardly from the vehicle body 26, and preferably these poles are the same as the forwardly projecting pole of the magnetic element 36 but unlike the rearwardly projecting pole of the magnetic element 38. In other words, in the embodiment shown, the magnetic elements 40 and 42 are oriented so that their respective north poles project forwardly and rearwardly of the vehicle body 26.

With the structure described above and the arrangement of the magnetic poles specified, it will be noted that when the front end of the vehicle 14 is placed adjacent the rear end of the vehicle 12, the magnetic elements 38 and 40 will magnetically couple the two vehicles together so that the vehicle 12 may be manipulated for towing the vehicle 14. As shown in FIG. 2, the vehicles may be arranged and moved generally in a straight line or, alternatively as shown in FIG. 3, the vehicles may be manipulated so as to turn a corner. It is further to be noted that the circular configuration of the magnetic elements 38 and 40 enables the vehicles 12 and 14 to be positioned at an angle with respect to each other during manipulation around a corner without breaking the magnetic coupling between the vehicles.

It is further to be observed that the vehicle 12 may be manipulated not only for pulling the vehicle 14 but also for pushing the vehicle 14. More specifically as shown in FIG. 4, the vehicle 12 may be arranged behind the vehicle 14. When this is done the like poles of the magnetic elements 36 and 42 are positioned adjacent each other whereby the vehicle 14 will be magnetically repelled or pushed from the vehicle 12. Thus the vehicle 12 may be utilized for magnetically pushing the vehicle 14 without actuating mechanically contacting the vehicle 14 whereby to provide a fascinating action and motion between the two vehicles, particularly for young children.

While a preferred embodiment of the present invention has been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. A toy vehicle set comprising a first toy wheeled vehicle and a second toy wheeled vehicle, first and second magnets respectively mounted adjacent front and rear

3

ends of said first vehicle, and third and fourth magnets respectively mounted at front and rear ends of said second vehicle, said second and third magnets having unlike poles facing outwardly of their respective ends of their respective vehicles for enabling said second and third magnets to couple magnetically said vehicles when said front end of said second vehicle is positioned adjacent said rear end of said first vehicle, said fourth magnet having a pole facing outwardly of said second vehicle like said outwardly facing pole of said third magnet and said first magnet having a pole facing outwardly of its associated end of the first vehicle like said outwardly facing pole of said third and fourth magnets for enabling said first vehicle to be manipulated for magnetically pushing the second vehicle without mechanically contacting the same when said either end of said second vehicle is adjacent said front end of said first vehicle.

2. A toy vehicle set, as defined in claim 1, wherein said magnets comprise rounded portions projecting from their

4

respective vehicles for enabling the vehicles to be moved around corners and at angles to each other without interrupting the magnetic action between the second and third magnets.

5 3. A toy vehicle set, as defined in claim 1, wherein said magnets are permanent magnets comprising horizontally disposed flattened annular body members.

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