

# UNITED STATES PATENT OFFICE.

THEODORE S. DOWST, OF CHICAGO, ILLINOIS.

CHILD'S WHEEL TOY AND PROCESS OF MAKING THE SAME.

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This invention relates to children's toys.

It is an object of this invention to produce an inexpensive toy of pleasing appearance in simulation of useful articles, such as automobiles. It is a further object to produce such an article capable of economical quantity production in a large variety of forms with a minimum of producing machinery.

It is a further object to produce such an article in a plurality of pleasing colors without the necessity of hand coloring. It is a further object to produce a series of toys having interchangeable but different parts, whereby a plurality of different toys may be obtained with a minimum of parts. It is a further object to produce a series of toys in which the individual toys may be permanently assembled from component units for individual sale or in which the same units may be sold in sets to be individually assembled in different combinations at the will of the child.

Other objects of this invention will in part be obvious and will in part be described hereinafter.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a side elevation of a sedan automobile made in accordance with this invention.

Fig. 2 is an exploded perspective view showing the parts in position ready for assembly.

Figs. 3 and 4 are details of the attaching means.

Fig. 5 is an exploded prospective view similar to Fig. 2, but of alternative construction.

Fig. 6 is a similar view of another alternative construction.

In the manufacture of small toys it is frequently desirable to color the toy with a plurality of colors to increase the simulation to an automobile. These toys, however, are sold at a price which makes hand coloring impractical, if not prohibitive. In accordance with this invention it has been found that this defect may be overcome by separating the toy into different portions to be separately colored as desired, the sections being made complementary with interengaging locking elements. These parts may then

be separately colored by dipping or spraying. For example, if it is desired to provide an automobile such as illustrated in Fig. 5, with the motor and cab portions and chassis of one color and the load carrying body of a separate color, this may readily be accomplished by forming the parts of separate portions and coloring them differently before assembly.

Where a toy of the character described is to be made of separate portions it is important that the separate portions shall be made to accurate size, in order that the plurality of interlocking members employed may fit into each other. I prefer, therefore, for this reason as well as because of the superior appearance of the toys so formed, to employ the die casting method in the manufacture of the parts.

Where the parts are sold in sets, each comprising a plurality of interchangeable parts, it is important that there should be sufficient friction between the interengaging parts to hold the parts together, while the toy is being played with. I have found that white soft metal is very satisfactory, therefore, for the formation of such interengaging parts in that it has a high co-efficient of friction and during normal use of the toy the lugs are apt to become slightly distorted, which causes them to fit tightly in place, even though they may have been slightly worn by use. For this reason I find it preferable to cast the lugs from the same white metal which is employed in the die casting of the parts themselves. There is still another advantage which results from the employment of the soft metal in the construction of the lugs and that is that there may be slight variations for one cause or another which might hinder the assembly. With the soft metal it is possible forcibly to assemble them so that the parts are mutually deformed into a retentive but detachable engagement, thus avoiding the necessity of any riveting or readjusting such as might be required if the parts were made of hard metal.

In the drawings, referring now to Figure 1, the numeral 1 designates the chassis of a sedan; number 2 the body. These parts are made separately by separate die casting operations. The chassis carries also the hood 3 integral with it and the body has a projecting lug 4 of shape complementary to the interior of the rear edge of the hood portion, so that when the body is inserted in

place the front of it will be securely held by the projection of the lug beneath the hood. The body and chassis are of complementary form. In the form illustrated it will be noted that the body portion is cut out to extend above the mud guards of the chassis and for this reason the parts may be held in place, if desired, without any other connection at the back, since the interfitting between the body and the mud guards prevent longitudinal displacement of the body and hence prevent disengagement of the front lug with the hood. In general, however, I prefer to provide specific means at the rear for holding the parts in place.

At the rear of the chassis one or more orifices 6 may be provided into which may extend a lug 7 to prevent lateral displacement of the body. This lug is in the form of a round pin directly cast upon the material of the body. As illustrated in the drawing, two such orifices 6 are provided, one at each side of the car, each having a mating lug 7. The car is also provided with wheels 8 which rotate on axles 9 and these wheels may be colored as desired.

With the above construction it will be obvious that the chassis portion may be painted any suitable color merely by dipping it in enamel of the color desired. Similarly, the body may be differently colored by dipping. Thereafter, when the parts are assembled the line between the different colors will be accurate without the necessity of re-touching.

The method of assembling also makes it possible to manufacture a large number of different automobiles by providing one or more standard chassis with a plurality of different bodies, the bodies being interchangeable with each other on the chassis.

When it is desired to sell a single toy as a unit the lug 7 may be riveted over permanently to retain the parts in assembled formation, thus providing an inexpensive, well constructed, two colored toy. When, however, it is desired to sell the parts in sets, one such chassis may be assembled with two or three bodies, permitting a child to remove and replace the bodies at will.

Figure 5 illustrates the application of the invention to a fire truck and in this construction the chassis 11 is provided with a detachable load carrying body 12. The chassis has formed integral with it a hood 13. The forward end of the body has a projecting lug 14 fitting beneath the lower end of the back wall 15 of the hood. The rear end of the chassis is provided with an orifice 16 adapted to receive a lug 17 on the body, which not only serves to detachably retain the parts in place, but also prevents longitudinal movement of the body upon the chassis.

The truck particularly shown in this mod-

ification is one intended to receive different bodies, including a ladder tower. This may, if desired, be replaced by other bodies to form a complete fire fighting set. As for example, the same chassis may be successively equipped as a hook and ladder, a hose wagon or a fire engine.

In both the foregoing forms of the invention it will be seen that the forward lug is inserted horizontally and the rear lug vertically, so that the insertion of the rear lug in its orifice prevents the withdrawal of the forward lug. Where this form of construction is employed it is possible permanently to assemble the toy solely by riveting a single rear lug.

In Figure 6 is illustrated a modification. In this form a chassis 21 carries a body 22, but the chassis itself is provided with two orifices 25 adapted to receive corresponding lugs 24 projecting from the bottom of the body. These lugs are illustrated as parallel to each other, so that the automobile may be assembled by a simple movement. This form of assemblage has the advantage that the parts do not require to be so accurately fitted together but I prefer the form of the invention illustrated in Figures 1 and 2, where detachability is to be retained while the toys are to be played with.

It will be understood that the lugs in any of the forms may be riveted over whenever desired. It will be observed that the interfitting between front and back attaching elements makes it desirable that the parts be made rather accurately to dimension. I prefer, therefore, that they be made by the die casting operation, in which the metal is forced into the die under pressure.

Thus by the above construction are accomplished, among others, the objects hereinbefore set forth.

Since certain changes in carrying out the above process, and certain modifications in the article which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A method of making a multicolor, cast metal, toy vehicle in quantity which comprises dividing the design of the completed toy along the lines of color change into separate body and chassis parts, constructing

parts corresponding to the design parts by a die casting process, making the chassis and the body parts to coact upon assembly to form a unit and be readily separable, coloring the separate parts a uniform color by quantity coloring process and assembling the colored parts to form a completed toy vehicle.

2. A toy of the character described comprising in combination a die cast chassis

portion having at one end an overhanging ledge, and at the other end, an orifice, and a mating die cast body portion having co-acting connecting parts comprising a projecting rim co-acting with, and adapted to extend under, said overhanging ledge, and a soft metal plug co-acting and tightly fitting within the orifice.

In testimony whereof I affix my signature.  
THEODORE S. DOWST.