

SPECIFICATION

Vehicle for children

- 5 The present invention relates to a rideable vehicle for children and particularly to a construction designed to arouse a child's interest.

Vehicles for children in various styles simulating automobiles, motorcycles, airplanes, animals and many other forms have appeared on the market.

- The bodies of such vehicles are in most cases made of rigid plastics materials and are usually produced by molding processes using expensive dies. For this reason it is not economically desirable to engage in diversified small-quantity production of different vehicle bodies. However, the market sees the need for variety in vehicles for children, in order to arouse their interest, and so in spite of the problem just mentioned different vehicles with different bodies are being offered to meet the need.

- Currently, the provision of a variety of vehicles for children usually requires a corresponding variety of vehicle bodies. Therefore, the die must be changed each time a different vehicle body is to be produced. This is disadvantageous from the standpoint of cost, as indicated above.

- However, we have noticed that in many cases, the shape of the respective vehicle bodies varies only partially from vehicle to vehicle. We have perceived that if a suitable design is selected at the stage of designing a vehicle body, a change in one portion of the body only can give a different impression as a whole. Thus, by changing the appearance of the front portion of the vehicle body an entirely different impression is made, the design of the front portion determining generally whether the vehicle looks like an automobile, an airplane, an electric car or an animal. In other words, the front portion has a great influence on the overall design of the vehicle.

- According to one aspect of the present invention, there is provided a rideable vehicle for children comprising a vehicle body provided with a seat and a plurality of wheels, said vehicle body including a front body portion which is formed separately from the remainder of the body, and shaft means pivotally connecting the front body portion to the remainder of the body for movement between an open and a closed position, the front body portion presenting a given external appearance when closed and revealing features of a face when open.

- With this arrangement, when the front body portion is in its closed position, its outer surface is visible, but when it is opened, the portion which was hidden thereunder comes into view. By making the designs on the outer surface of the front body portion and on the

outer surface of the section of the vehicle body remainder located under the front body portion different from each other, it is possible to provide a dynamic variation in the external appearance in accordance with the opening and closing of the front body portion.

- In other fields than that of rideable toy vehicles to which the present invention is directed, for example, in the field of miniature toy automobiles such as cars which children can hold in their hands, there has heretofore been an arrangement wherein the bonnet portion of the automobile is made removable or adapted to be opened and closed to reveal a simulated engine so as to arouse the interest of children by this dynamic function.

In the field of rideable vehicles for children, there has been no such arrangement wherein a front body or bonnet portion is made removable or adapted to be opened and closed, and further there has been no arrangement wherein a front body portion has been openable to reveal features of a face. Such dynamic function, however, is expected to be an important element of the invention for arousing the interest of children.

- Preferably the invention employs not only the external shape of the front body portion but also accessories attached thereto as a feature for arousing the interest of children. Such accessories can be more diversified than said external shapes, and it is considered that only those of the accessories that are fantastic or elaborate can attract children. However, considering that the vehicles are for use by children, it is preferable to avoid too complicated an arrangement.

- In another preferred embodiment of the invention, the front body portion is arranged so that it can be easily removed from the vehicle body remainder. Therefore, by selectively combining these various front body portions with the vehicle body remainder it is possible to vary the appearance of the vehicle at relatively low cost.

The present invention at least in its preferred form thus provides a construction for vehicles for children which is simple and effective in arousing the interest of children.

- The preferred embodiment of the invention achieves the presentation of an external shape at low cost and provides a construction which is adapted for the diversified small-quantity production of vehicles for children.

- The invention also provides a vehicle for children which has not only a static external shape arousing the interest of children but also a dynamic function.

And, the vehicle may also be equipped with accessories sufficiently elaborated to arouse the interest as mentioned above.

- According to another aspect of the invention, there is provided a method of producing rideable vehicles for children comprising providing a plurality of vehicle front body por-

tions having respective appearances, providing a common vehicle body remainder having a seat, a plurality of wheels, and a portion presenting features of a face, selecting a respective one of the front body portions, pivotably connecting the selected front body portion to the common vehicle body remainder by shaft means such that the selected front body portion is movable between a closed position, in which it presents the respective appearance and covers the features of the face presented by the portion of the body remainder, and an open position, in which it reveals the features of the face.

The invention is described further, by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is a perspective view of a vehicle embodying the invention;

Figure 2 is a perspective view of the vehicle with a bonnet-like front housing in an opened position;

Figure 3 is a bottom view of the vehicle of Figs. 1 and 2;

Figure 4 is a diagrammatic sectional view showing an example of engaging means provided for the front housing of the vehicle;

Figure 5 is an exploded perspective view of some parts of the engaging means of Fig. 4;

Figure 6 is a perspective view of the front housing separated from the vehicle body;

Figure 7 is a sectional view of the vehicle illustrating another example of the engaging means for the front housing of Fig. 1;

Figure 8 is a diagrammatic side view of the principal portion of the engaging means shown in Fig. 7;

Figure 9 is a perspective view of a guide shown in Fig. 8;

Figure 10 is a perspective view illustrating a whistling device interlocked to the engaging means of Fig. 7;

Figures 11 through 16 are perspective views showing a plurality of examples of the invention which, as compared with one shown in Fig. 1, give different impressions due to their different external shapes;

Figure 17 is a perspective view illustrating another example of the manner of supporting and opening and closing the bonnet-like front housing;

Figure 18 is a perspective view of another embodiment of the invention;

Figure 19 is a perspective view showing the bonnet-like front housing of the vehicle of Fig. 18;

Figure 20 is a sectional view showing a portion of the vehicle body of Fig. 18;

Figure 21 is a perspective view of the vehicle of Fig. 18 with the bonnet-like front housing removed;

Figure 22 is a perspective view similar to Fig. 21 showing accessories attached to the vehicle;

Figure 23 and 24 are sectional views of the

accessories of Fig. 22; and

Figure 25 is a perspective view similar to Fig. 21 showing a sticker applied to the vehicle.

DESCRIPTION OF THE PREFERRED EMBODIMENTS:

Referring to Figs. 1 through 3, a vehicle for children has a vehicle body 1 made of plastics or the like material. The vehicle body 1 is formed with a bonnet-like front housing 2. The remainder 3 of the body excluding said front housing 2 is prepared separately from said front housing 2. A seat 4 is provided on top of the body remainder 3. The seat 4 is adapted to be opened and closed, and a storage portion 5 located below said seat 4 may be arranged to store things. Towards the front of the body portion 3 there is provided a steering wheel 7 supported on an upwardly projecting wheel shaft 6. Rotatably installed below the body portion 3 are two ground-engaging front wheels 8 and two ground-engaging rear wheels 9.

The front wheels 8 are supported on a front wheel shaft 10 journaled in a bearing portion 11 extending from the steering wheel shaft 6. The bearing portion 11 and the steering wheel shaft 6 are arranged to be rotatable around the axis of the shaft with respect to the body portion 3. As a result, the front wheels 8 are turnable by the manipulation of the steering wheel. As an alternative, the front wheels 8 may be arranged to be fixed and may serve for ornamental purposes only. The rear wheels 9 are supported on a rear wheel shaft 12 journaled in bearings 13 extending from the body portion 3.

The vehicle body 1 is provided with a push button 14 at the front and an operating lever 15 on one side. The push button 14 and operating lever 15 may be manipulated to open the front housing 2, as shown in Fig. 2. The details of such an arrangement will be described below.

Referring to Figs. 4 and 5, the push button 14 is held between upper and lower attachments 16 and 17 fixed to the inner side of a bumper-like front end portion of the vehicle body 1 and is displaceable back and forth. The lower attachment 17 is formed with a rearwardly projecting pin receiving portion 18 formed with a pin receiving hole 19. A locking lever 20 is provided with a hook 21 at one end and a pin receiving hole 22 at the other. A pin 23 is received in the pin receiving holes 19 and 22 which are aligned with each other. The locking lever 20 is supported on said pin 23 for rotation with respect to the lower attachment 17. A spring 24 is mounted on the pin 23 with the opposite legs of said spring resiliently abutting against the lower attachment 17 and the locking lever 20, thereby constantly urging said locking lever 130 counterclockwise as viewed in Fig. 4. The

counterclockwise urging of the locking lever 20b brings it into abutment against a projection 25 on the push button 14, thereby urging the push button 14 to the left as viewed in Fig. 4. The leftward urging of the push button 14 brings a ridge 26 on the upper surface of the push button into abutment against the upper attachment 16, whereby the push button is arrested. The front end of the front housing is provided with a downwardly extending projection 27 formed with a rectangular engaging hole 28. The front end of the body remainder 3 is provided with an elongated throughgoing hole or a slot 29 (Fig. 2) for receiving the projection 27. When the projection 27 is received in the slot 29, the hook 21 engages one end edge of the throughgoing hole 28 to maintain the closed state of the front housing 2. When the push button 14 is pressed, the locking lever 20 is turned clockwise as viewed in Fig. 4, thus canceling the engagement between the hook 21 and the end edge of the locking hole 28.

The operating means for effecting said disengagement includes the operating lever 15 besides the push button 14. The operating lever 15 is arranged so that it can be turned together with a turning shaft 30 extending widthwise of the body remainder 3 and turnably supported in the opposite side walls of the body remainder 3. The turning shaft 30 has a turning piece 31 fixed thereto, while the locking lever 20 is provided with a throughgoing hole 32 in which a hooking element 33 is received in such a manner that it will not come out. A string or wire 34 extends under tension between the hooking element 33 and the turning piece 31 to connect them together. With this arrangement, when the operating lever 15 is turned in either direction, its movement is transmitted to the locking lever 20 successively through the turning shaft 30, the turning element 31, the string 34 and the hooking element 33, so that the locking element 20 is disengaged from the end edge of the engaging hole 28.

Referring to Fig. 6, a front housing 2 shown therein is slightly different from the front housing 2 shown in Fig. 1. Suffice it to say that this is for the convenience of preparing the drawing and has a role to play in providing various forms of front housing 2 to be later described with reference to Fig. 16.

The front housing 2 is provided with a notch 35 on the side opposite to the side where the projection 27 is provided, and ribs 36 (one of which is hidden) formed on the opposite sides of the notch 35 are provided with throughgoing holes 37. The body remainder 3 is provided with a ridge 38 adapted to be received in the notch 35 of the front housing 2, said ridge 38 being provided with a bearing hole 39. Provided in the vicinity of the bearing hole 39 of the body remainder 3 are small holes 40.

A shaft member 41 is prepared in order to connect the front housing 2 to the body remainder 3. The shaft member 41 is provided with a head 42 on one end and a male thread 43 on the other end. The male thread 43 will threadedly receive a nut 44, which is, for example, a cap nut. The shaft member 41 has two springs 45 fitted thereon.

The manner of connecting the front housing 2 to the body remainder 3 will now be described. Firstly, the throughgoing holes 37 of the front housing 2 and the bearing hole 39 of the body remainder 3 are brought into alignment with each other. In order to facilitate the insertion of the shaft member 41 to be presently described, it is preferably that such alignment be effected with the front housing 2 opened. The shaft member 41 with one spring 45 carried thereon is inserted into one throughgoing hole 37 and then into the bearing hole 39 until it projects through the other throughgoing hole 37. The other spring 45 is then fitted on the projecting portion, and the nut 44 is engaged with the male thread 43 on the projecting portion, so that the front housing 2 is turnably supported by the shaft member 41 with respect to the body remainder 3. In this state, the springs 45 act to constantly urge the front housing 2 in its opening direction. More particularly, one leg of a spring 45 is inserted in the associated small hole 40 and the other leg is fixed to the front housing 2 at a suitable position thereon. Thus, even if the front housing 2 is joined to the body remainder 3, it is easy to remove it therefrom. More particularly, this can be achieved by loosening the nut 44 to remove it from the shaft member 41 and withdrawing the latter.

As described above, when the front housing 2 is turnably connected to the body remainder 3, it is constantly urged in its opening direction by the action of the springs 45. In the ordinary state, however, it is necessary that it be in its closed position, as shown in Fig. 1. The engaging means described with reference to Figs. 4 and 5 advantageously acts for this purpose.

The engaging means described with reference to Figs. 4 and 5 may be replaced by engaging means to be described below. If the following embodiment is used, the addition of this simple arrangement will make it possible to provide an interesting embodiment wherein a whistle can be blown in operative association with the engaging means.

Referring to Figs. 7 through 10, the engaging means also comprises a push button 14 and an operating lever 15, turnably supported on a turning shaft 30, which serve as operating means. The push button 14 has an engaging member 46 fixed thereto. The front end of the engaging member 46 is formed with a hook 47 adapted to engage one end edge of the rectangular locking hole 28 of a

projection 27. Further, the push button 14 has a rod 48 connected thereto. Therefore, the movement of the push button involves the movement of the engaging member 46 and the rod 48 as a unit. The engaging member 46 is retained and guided by a guide 49 best shown in Fig. 9. The guide 49 is provided with a guide element 50 of U-shaped cross-section for slidably receiving the push button 14 therein. It is also provided with attaching holes 51 for attaching the guide 49 to the lower surface of the body remainder 3. The rod 48 is received in a rod guide hole 53 formed in an upright portion 52. A coil spring 54 is interposed between the upright portion 52 and the engaging member 46, whereby the engaging member 46 is constantly urged to the left as viewed in Fig. 8, i.e., in a direction to force the hook 47 of the engaging member 46 into the engaging hole 28. The engaging member 46 is positioned so that its lower end is in slide contact with a portion 55 located a step below the receiving portion 50, whereby the range of movement of the engaging member 46 is limited by said portion 55.

The rod 48, as shown in Fig. 7, is suitably guided toward the rear while clearing the obstacles inside the body remainder 3 and is connected to a whistling device 56 disposed approximately intermediate between the ends of the vehicle. The whistling device 56 comprises an air chamber made of plastic material and a whistle and is arranged so that the whistle is blown by compressing the air chamber to force out the air therein. The compression of the air chamber is achieved by the displacement of the rod 48.

The displacement of the rod 48 is operatively associated with the manipulation of the push button 14 but said displacement can also be achieved by manipulating the operating lever 15. The operating lever 15 is supported by the turning shaft 30, as previously described. The turning movement of the operating lever 15 causes the turning movement of the shaft 30 around its axis. The shaft 30 has a tongue member 57 fixed thereto. The tongue member 57 is formed with an elongated hole 58 in which a rod 48 is inserted. On the side of the tongue member 57 nearer to the whistling device 56, there is provided a flange 59 fixed to the rod 48. As a result, the turning of the operating lever 15 causes the shaft 30 to turn in the direction of arrow 60, with the tongue member 57 pushing the flange 59, so that the rod 48 together with the flange 59 is displaced in the direction of arrow 61.

With such arrangement, pressing the push button 14 or turning the operating lever 15 disengage the hook 47 of the engaging member 46 from the locking hole 28, allowing the front housing 2 to automatically turn to open under the action of the springs 45. Particularly, if the arrangement shown in Figs. 7

through 10 is employed, the manipulation for disengaging the engaging member 46, i.e., the pressing of the push button 14 or the turning of the operating lever 15 is also effective to blow the whistling device 56.

Again referring mainly to Figs. 1 and 2, the ornamental arrangement affixed to the vehicle for children will now be described.

The front housing 2 presents a human being's facial expression with the eyes opened and the mouth closed, in caricature. The opened eyes are expressed by appropriating headlight portions 62 for this purpose, while the closed mouth is expressed by applying a sticker 63.

The portion hidden by said front housing 2, i.e., the front upper surface of the body remainder 3 presents a human being's facial expression with the eyes closed and the mouth opened, in caricature. The closed eyes are expressed by applying stickers 64, while the opened mouth is expressed by applying a sticker 65.

By applying features of a human being's face to the vehicle in this manner, as will be readily understood by reference to Figs. 1 and 2, the closed position (Fig. 1) and opened position (Fig. 2) of the front housing 2 provide human being's different facial expressions. Since the change from the closed position to the opened position is instantaneously effected by the springs 45 (Fig. 6), it follows that the facial expression with the eyes opened and the mouth closed will suddenly change into the facial expression with the eyes closed and the mouth opened. This unexpectedness will excite children's interest. The shift of the front housing from its closed position to its opened position can be achieved by manipulating the operating lever 15, as described above. In this connection, attention should be given to the position and state in which the push button 14 is installed. More particularly, the push button 14 is installed, projecting from the front surface of the vehicle body 1. Therefore, when a child plays with this vehicle and sits on the seat 4 astride the vehicle and drives it by using his feet on the ground, a collision of the vehicle against some obstacle will result in the push button 14 being pressed so that the front housing 2 opens at the same time. Further, if this action of pressing the push button 14 blows the whistle (Figs. 7 through 10), it is possible to give an impression as if the vehicle were complaining of the pain it suffers from the collision. This may even give children the impression that the vehicle is a living creature.

The shift of the front housing 2 from its opened position (Fig. 2) to its closed position (Fig. 1) can be achieved by simply depressing the front housing 2. This is because the hook 21 of the locking lever 20 (Fig. 4) or the hook 47 of the engaging member 46 (Fig. 8) is formed with a guide surface so that the en-

gaged state can be automatically established by the spring 24 or the springs 54. Further, the push button 14 or the operating lever 15 manipulated to open the front housing 2 will automatically return to its original position under the action of the spring 24 (Fig. 4) or the springs 54 (Fig. 8).

Another ornamental arrangement comprises a klaxon accessory 66 disposed at the middle of the steering handle 7. The klaxon accessory 66 works on substantially the same principle as the whistling device 56 previously described and comprises an air chamber and a whistle. Thus, the whistle is blown by manually compressing the air chamber to force out the air therein.

Further, an accessory 67 in the form of a wireless telephone may be attached to an area adjacent the steering wheel 7 through a cord 68. This telephone accessory 67 can be picked up from the vehicle body 1 within the range in which the cord 68 extends.

Vehicles for children shown in Figs. 11 through 16 are such that the impressions their external shapes give are different from the impression of the external shape of the vehicle shown in Fig. 1. However, even if limited to the cases shown in Figs. 11 through 16, there are many common parts despite the fact their external shapes give different impressions. For example, the common parts include the body remainder 3, seat 4, steering wheel 7, ground-engaging front wheels 8, ground-engaging rear wheels 9, push button 14 and operating lever 15. Each of the vehicles shown in Figs. 11 through 16 is adapted to have an upwardly extending handle 69 attached to its rear end of the body remainder 3. Such handle 69 can be attached in the manner shown in Figs. 11 and 12. The handle 69 is attached by being inserted in holes 70 (Figs. 13 through 16) formed in the rear end of the body remainder 3. Further, the handle 69 can be easily withdrawn from the holes 70, and therefore, it may be installed only when necessary (Figs. 11 and 12) and detached when unnecessary (Figs. 13 through 16). The handle 69 is used when a grown-up pushes the vehicle with a child placed therein to amuse the child or when a child himself pushes it to amuse himself.

Referring to Figs. 11 through 16, features of the vehicles for children shown therein will be described.

Fig. 11 shows a vehicle for children simulating a lion. Thus, the front housing 2 has the shape of a lion's face. Ear accessories 71 corresponding to lion's ears are attached, for example, removably. A klaxon accessory 72 is attached to the middle of the steering wheel 7. In addition, such klaxon accessory 72 is also attached to the vehicles for children shown in Figs. 12 through 14.

Fig. 12 shows a vehicle for children simulating a hippopotamus. Thus, the front hous-

ing 2 has the shape of a hippopotamus's face. As in the case of Fig. 11, ear accessories 73 corresponding to hippopotamus's ears are removably attached. Further, stickers 74 representing a water surface are applied. Such watersurface stickers 74 can be easily affixed after the production of the body remainder 3.

Fig. 13 shows a vehicle for children simulating a classic car. Thus, the front housing 2 is in the form of the bonnet of a classic car.

Fig. 14 shows a vehicle for children simulating a taxi. In order to make the vehicle look more like a taxi (however, such is based on Japanese feelings), a checkered sticker 75 is applied to the front housing 2 and a sticker 76 bearing the letters "TAXI" is applied to a side of the body remainder 3. Further, an accessory 77 simulating a taximeter or the like is attached to an area adjacent and below the steering wheel 7.

Fig. 15 shows a vehicle for children simulating a patrol car. Thus, the front housing 2 has the shape of the bonnet of an automobile. In order to make the vehicle look more like a patrol car (however, such is based on Japanese feelings), a sticker 78 representing the (Japanese) police emblem is applied to the front housing 2 and a sticker 79 bearing the letters "HIGHWAY PATROL" (not shown) is applied to a side of the body remainder 3. Further, an accessory 80 in the form of a wireless telephone is attached to the vehicle. An accessory 81 simulating a flasher peculiar to an emergency car is attached to the middle of the steering wheel 7.

Fig. 16 shows a vehicle for children simulating a fire engine truck. Thus, the front housing 2 has the shape of the bonnet of a fire engine truck. In order to make the vehicle look more like a fire engine truck (however, such is based on Japanese feelings), a sticker representing the (Japanese) fire-fighting emblem is applied to the front housing 2 and a sticker 82 representing a fire-fighting hose and bearing the letters "FIRE ENGINE TRUCK" (not shown) is applied to a side of the body remainder 3. Further, an accessory 84 simulating a siren and an accessory 85 simulating a bell are attached to the sides of the body remainder 3. An accessory 86 simulating a flasher is attached to the middle of the steering wheel 7, as in the case of a patrol car.

It will be understood that in the vehicles for children shown in Figs. 11 through 16, by having the body remainder 3 in common and changing the front housing as desired, it is possible to provide a variety of products. As can be surmised from the examples shown in Figs. 11 through 16, the front housing 2 may be made in other different types. For example it may have the shape of the front of an airplane, a locomotive or a streetcar.

What are shown in the figures referred to above, particularly in Figs. 14 through 16,

have been designed on the basis of Japanese feelings since the inventor is a Japanese. Therefore, these designs of a taxi, patrol car, fire engine truck, etc. may be suitably changed according to the circumstances of various countries.

In the embodiments described above with reference to Figs. 1 through 16, the front housing 2 is turnably supported on the shaft member 41 located in a relatively rearward area. Therefore, when the front of the vehicle is observed, the portion hidden under the front housing 2 comes into view the instant the front housing 2 is opened. If a form related to the external form of the front housing or an unexpected form having nothing to do therewith is given to the hidden portion in advance, it is possible to provide an interesting vehicle for children. As for the form given to the hidden portion, besides the one shown in Fig. 2, in the case of the front housing 2 having the shape of the face of an animal shown in Fig. 11 or 12, the condition of the interior of the animal's mouth showing the fangs or a different facial expression may be represented by a sticker or the like. Further, in the case of vehicles for children simulating automobiles as in Figs. 13 through 16, a caricaturized engine with an angry face or a crying face may be represented by a sticker or the like. Such expedients will certainly further arouse the interest of children.

The manner of turning the front housing 2 may be modified in various ways. For example, an arrangement shown in Fig. 17 may be adopted. Thus, the front housing 2 of a vehicle for children shown therein is turnably supported on a shaft member 41 (shown in dotted lines) located in a relatively lower position. Accordingly, the push button 14 and the associated engaging means (not shown) are disposed relatively rearwardly on the front housing 2. In addition, in Fig. 17, the parts corresponding to those shown in the figures described above are given like reference numerals, and a description thereof is omitted.

As for the manner of turnably supporting the front housing, an arrangement may be adopted wherein it is supported on a laterally positioned shaft so that it may be laterally opened. As another arrangement, the front housing 2 may be divided into two parts in the manner of a double-leafed hinged door.

Further, the front housing 2 may be combined with the body remainder by fitting them together using suitable locking means, rather than turnably supporting it as described above. An example of such arrangement will now be described with reference to Figs. 18 through 24.

Figs. 18 through 24 show a vehicle for children similar to the one shown in Fig. 1. Thus, the seat 4, steering wheel 7, front wheels 8, rear wheels 9, etc., are substan-

tially the same as those shown in Fig. 1. The vehicle for children shown therein simulates a truck. Thus, the vehicle body 87 has a shape looking like a truck. Although it is stated to have a shape looking like a truck, only the bonnet-like front housing 88 is constructed to simulate the front of a truck, but the body remainder 89 basically greatly resembles the body remainder 3 of Fig. 1. The front housing 88 is combined with the body remainder 89 by fitting them together, and such combined state is selectively fixed by attachments 90. Therefore, the front housing 88 can be separated from the body remainder 89, as shown in Fig. 19. The front housing 88 has an internal shape which is complementary to the external shape (best shown in Fig. 21) of the associated portion of the body remainder 89, so that it can be advantageously positioned on the associated portion of the body remainder 89. In order to fix this positioned state, an arrangement shown in Figs. 19 and 20 is adopted.

Referring to Fig. 19, the front housing 88 is provided with attaching holes 91 disposed on opposite sides adjacent the end edges thereof. Notches 92 extend from said attaching holes to the end edge of the front housing 88.

Referring to Fig. 20, the details of each attachment 90 are shown in an enlarged view. The attachment 90 has an attaching shaft 93 with a diameter equal to or slightly smaller than the diameter of said attaching holes 91. The attaching shaft 93 is supported by an end of a support shaft 94 smaller in diameter than said attaching shaft 93. The support shaft 94 removably extends through the wall of the body remainder 89. The inner end of the support shaft 94 is formed with a bend 95. A coil spring 96 is mounted on the support shaft 94 to exert a resilient force between the inner wall of the body remainder 89 and a flange 97 fixed to the support shaft 94. The resilient force of the coil spring 96 brings the bend 95 into abutment against a locking projection 98 on the inner wall of the body remainder 89. A second locking projection is disposed adjacent said locking projection 98. The second locking projection 99 is less high than the locking projection 98.

When a knob 93 associated with the attaching shaft 93 is pulled, the attaching shaft 93 and support shaft 94 will be displaced against the force of the coil spring 96. In order to temporarily retain an intermediate state of such displacement, the engagement between the second locking projection 99 and the bend 95 is used. More particularly, the engagement between the second locking projection 99 and the bend 95 can be effected by bringing the bend 95 from the state of Fig. 20 with a slight turn applied thereto through the knob 100 to a state in which it has passed over the second locking projection 99

and then releasing the knob 100 while turning it back.

Referring to Fig. 21, the front of the body remainder 89 is formed with a mount surface 101 for mounting the rear end of the front housing 88. Disposed forwardly of said mount surface 101 are a vertical flat surface 102 and a horizontal flat surface 103 in the order mentioned. The vertical flat surface 102 is formed with two throughgoing holes 104 and 105 disposed side by side, while the horizontal flat surface 103 is formed with two throughgoing holes 106 and 107 disposed one behind the other.

Referring to Figs. 22 through 24 along with Fig. 21, accessories 108 simulating human being's eyes in transfiguration are attached to the throughgoing holes 104 and 105. Such accessory 108 is provided with a pin 109, as shown in Fig. 23, adapted to be tightly inserted into the throughgoing hole 104 or 105, so that the accessories 108 can be removably attached. Further, an accessory 110 simulating a human being's mouth in disfiguration is attached to the throughgoing hole 106. This accessory 110 is substantially the same in shape and other respects as said accessories 108. Further, an accessory 111 simulating a human being's nose in transfiguration is attached to the throughgoing hole 107. This nose accessory 111 is designed to present an image of a nose by transfiguring a nose into the shape of an eggplant. As shown in Fig. 24, the accessory 111 has a pin 112, whereby it can be removably attached as in the accessories 108.

The way of using or playing with the embodiment shown in Figs. 18 through 24 will now be described.

First, in the state of Fig. 21 in which the front housing 88 is removed, the accessories 101, 110 and 111 are attached to the respective associated throughgoing holes 104 through 107. This state is shown in Fig. 22.

Next, the front housing 88 is mounted on the front of the body remainder 89. The mounting of the front housing 88 is effected by holding the knobs 100 on the attachments 90, turning them, e.g., clockwise while withdrawing them to some extent, turning them counterclockwise and removing the hands from the knobs 100, with the result that the bend 95 of Fig. 20 engages the second locking projection 99. In this state, the support shafts 99 are retained partly projecting out through the wall of the body remainder 89. With this state maintained, the front housing 88 is placed on the mount surface 101 of the body remainder 89 while receiving the support shafts 94 through the notches 92, with the result that the support shafts 94 are placed in the attaching holes 91. When the knobs 100 of the attachments 90 are turned in either direction, the bends 95 are disengaged from the second locking projec-

tions 99, so that the support shafts 94 are pushed in by the springs 96 and the attaching shafts 93 are tightly fitted in the attaching holes 91. In this manner, the front housing 88 is mounted, as shown in Fig. 18.

When the form shown in Fig. 18, children may amuse themselves thinking that it is an ordinary vehicle like a truck. If the front housing 88 is removed, as described, then the caricaturized human being's face can be seen on the front of the body remainder 89, as shown in Fig. 22, which is very fun. In the state of Fig. 22, by suitably changing the accessories 108, 110 and 111, it is possible to produce a different form of presentation, a fact which has the effect of further arousing the interest of children.

While the accessories 108, 110 and 111 shown in Figs. 22 through 24 have been produced in three dimensions, it is also possible to realize presentation by applying planar stickers. Fig. 25 shows an arrangement wherein presentation is realized by applying a sticker 113 having drawn thereon two eyes, a mouth and a nose which simulates a tomato.

Further, in order to achieve various forms of presentation, stickers and three dimensional accessories may be used in combination. Further, it is also possible to use toy shovels, toy cranes, toy lifts and the like as accessories corresponding to those described above.

As illustrated in the various embodiments described above, it will be understood that the manner of presentation on the front housing 100 and the portion hidden by said front housing may be modified in various ways.

Further, in the various embodiments described so far, the front housing has been designed so that it can be easily attached to 105 and detached from the body remainder. This means that the front housing can be easily exchanged, e.g., at a store. If, therefore, various front housings (differing in shape or color) are prepared at a store, it is possible to 110 allow children to select what they like, which is advantageous.

While the removable construction of the front housing provides the merits described above, it is nonetheless possible for the front 115 housing to be fixedly pivotably attached to the body remainder as by bolting or welding.

As described above, it is an important aspect of the present invention that the vehicle body is constructed from a separate front 120 housing and body remainder. Therefore, by producing various forms of front housing with common body remainders, a variety of vehicles for children may readily be obtained.

If these front housings differ in color as well 125 as in shape from the body remainders, two-color vehicles for children may be obtained.

In this case, coloring by painting may be contemplated, but then there is a danger of the paint coming off. For this reason, two 130 color coloration is preferably achieved by co-

loring the resins themselves, so that there is no danger of paint coming off. On consideration of the sizes of the front housing and of the body remainder, it is seen that the body remainder is much larger than the front housing. The cost of the die for the body remainder, which is larger, is thus higher. According to the invention, the expensive die for the body remainder can be used commonly for a variety of vehicles, while the dies for the front housings which may be required in considerable number are much less expensive so that diversified small quantities of the vehicles can be produced efficiently.

Although the present invention has been described and illustrated in detail, it is to be clearly understood that the same is by way of illustration and example only and is not to be taken by way of limitation, the scope of the present invention being limited only by the terms of the appended claims.

CLAIMS

1. A rideable vehicle for children comprising a vehicle body provided with a seat and a plurality of wheels, said vehicle body including a front body portion which is formed separately from the remainder of the body, and shaft means pivotably connecting the front body portion to the remainder of the body for movement between an open and a closed position, the front body portion presenting a given external appearance when closed and revealing features of a face when open.

2. A vehicle for children as set forth in Claim 1, wherein the front body portion presents an animal face having a first facial expression when closed and reveals the face having a different facial expression when open.

3. A vehicle for children as set forth in Claim 1, wherein the front body portion presents when closed and reveals when open the facial features with the eyes opened and the eyes closed respectively or with the eyes closed and the eyes opened respectively.

4. A vehicle for children as set forth in Claim 1, 2 or 3, wherein the given appearance is presented by three dimensionally formed accessories.

5. A vehicle for children as set forth in Claim 1, 2 or 3, wherein the given appearance is presented by applied stickers.

6. A vehicle for children as set forth in any of claims 1 to 5, wherein said shaft means comprises a shaft removably received in openings in each of said front body portion and said body remainder whereby said front body portion is releasably connected to the body remainder.

7. A vehicle for children as set forth in any of claims 1 to 5, wherein said shaft means comprises a shaft fixed in openings in each of said front body portion and said body

remainder whereby said front body portion is secured to the body remainder.

8. A vehicle for children as set forth in any of claims 1 to 5, further comprising:

70 engagement means adapted to engage said front body portion to hold the latter in the closed position, and operating means for releasing the engagement means to open the front body portion.

9. A vehicle for children as set forth in Claim 8, wherein said operating means comprises a push button.

10. A vehicle for children as set forth in Claim 8, wherein said operating means comprises a lever.

11. A vehicle for children as set forth in claim 8, wherein said operating means comprises a push button and a lever which are disposed at different positions relative to each other and are selectively operable for opening said front body portion.

12. A vehicle for children as set forth in claim 8, further comprising:

90 a bellows arranged to be compressed in by operation of said operating means, and a whistle responsive to air being forced out of said bellows.

13. A vehicle for children as set forth in any of claims 8 to 12, further comprising 95 springs constantly urging said front body portion to open.

14. A vehicle for children as set forth in any preceding claims, wherein said shaft extends transversely of said front body portion 100 to the rear thereof.

15. A vehicle for children as set forth in any preceding claims, wherein said shaft member extends transversely of said front body portion to the front thereof.

16. A vehicle for children as set forth in claim 1, wherein said front body portion is releasably connected to said body remainder.

17. A vehicle for children as set forth in Claim 16, wherein said shaft means comprise 110 connection shafts on said body remainder, openings being formed in said front body portion to receive said shafts.

18. A vehicle for children as set forth in Claim 17, wherein:

115 said connection shafts are supported by support shafts which are thinner than said connection shafts, and wherein

120 said openings are disposed adjacent respective edge regions of said front body portion and have slots extending therefrom to the edge of said front body portion through which said support shafts are movable.

19. A vehicle for children as set forth in Claim 1, wherein said front body portion is 125 permanently fixed to said body remainder.

20. A vehicle for children as set forth in any preceding claim, wherein said body remainder and said front body portion are made of rigid plastics material.

130 21. A rideable vehicle for children substan-



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loring the resins themselves, so that there is no danger of paint coming off. On consideration of the sizes of the front housing and of the body remainder, it is seen that the body remainder is much larger than the front housing. The cost of the die for the body remainder, which is larger, is thus higher. According to the invention, the expensive die for the body remainder can be used commonly for a variety of vehicles, while the dies for the front housings which may be required in considerable number are much less expensive so that diversified small quantities of the vehicles can be produced efficiently.

Although the present invention has been described and illustrated in detail, it is to be clearly understood that the same is by way of illustration and example only and is not to be taken by way of limitation, the scope of the present invention being limited only by the terms of the appended claims.

CLAIMS

1. A rideable vehicle for children comprising a vehicle body provided with a seat and a plurality of wheels, said vehicle body including a front body portion which is formed separately from the remainder of the body, and shaft means pivotably connecting the front body portion to the remainder of the body for movement between an open and a closed position, the front body portion presenting a given external appearance when closed and revealing features of a face when open.

2. A vehicle for children as set forth in Claim 1, wherein the front body portion presents an animal face having a first facial expression when closed and reveals the face having a different facial expression when open.

3. A vehicle for children as set forth in Claim 1, wherein the front body portion presents when closed and reveals when open the facial features with the eyes opened and the eyes closed respectively or with the eyes closed and the eyes opened respectively.

4. A vehicle for children as set forth in Claim 1, 2 or 3, wherein the given appearance is presented by three dimensionally formed accessories.

5. A vehicle for children as set forth in Claim 1, 2 or 3, wherein the given appearance is presented by applied stickers.

6. A vehicle for children as set forth in any of claims 1 to 5, wherein said shaft means comprises a shaft removably received in openings in each of said front body portion and said body remainder whereby said front body portion is releasably connected to the body remainder.

7. A vehicle for children as set forth in any of claims 1 to 5, wherein said shaft means comprises a shaft fixed in openings in each of said front body portion and said body

remainder whereby said front body portion is secured to the body remainder.

8. A vehicle for children as set forth in any of claims 1 to 5, further comprising: engagement means adapted to engage said front body portion to hold the latter in the closed position, and operating means for releasing the engagement means to open the front body portion.

9. A vehicle for children as set forth in Claim 8, wherein said operating means comprises a push button.

10. A vehicle for children as set forth in Claim 8, wherein said operating means comprises a lever.

11. A vehicle for children as set forth in claim 8, wherein said operating means comprises a push button and a lever which are disposed at different positions relative to each other and are selectively operable for opening said front body portion.

12. A vehicle for children as set forth in claim 8, further comprising: a bellows arranged to be compressed in by operation of said operating means, and a whistle responsive to air being forced out of said bellows.

13. A vehicle for children as set forth in any of claims 8 to 12, further comprising springs constantly urging said front body portion to open.

14. A vehicle for children as set forth in any preceding claims, wherein said shaft extends transversely of said front body portion to the rear thereof.

15. A vehicle for children as set forth in any preceding claims, wherein said shaft member extends transversely of said front body portion to the front thereof.

16. A vehicle for children as set forth in claim 1, wherein said front body portion is releasably connected to said body remainder.

17. A vehicle for children as set forth in Claim 16, wherein said shaft means comprise connection shafts on said body remainder, openings being formed in said front body portion to receive said shafts.

18. A vehicle for children as set forth in Claim 17, wherein

said connection shafts are supported by support shafts which are thinner than said connection shafts, and wherein

said openings are disposed adjacent respective edge regions of said front body portion and have slots extending therefrom to the edge of said front body portion through which said support shafts are movable.

19. A vehicle for children as set forth in Claim 1, wherein said front body portion is permanently fixed to said body remainder.

20. A vehicle for children as set forth in any preceding claim, wherein said body remainder and said front body portion are made of rigid plastics material.

21. A rideable vehicle for children substan-



tially as herein described with reference to any of the accompanying drawings.

22. A method of producing rideable vehicles for children comprising providing a plurality of vehicle front body portions having respective appearances, providing a common vehicle body remainder having a seat, a plurality of wheels, and a portion presenting features of a face, selecting a respective one of the front body portions, pivotably connecting the selected front body portion to the common vehicle body remainder by shaft means such that the selected front body portion is movable between a closed position, in which it presents the respective appearance and covers the features of the face presented by the portion of the body remainder, and an open position, in which it reveals the features of the face.

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