

Dec. 10, 1968

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3,415,219

STEERING WHEEL WITH HORN, FOR TOY VEHICLES

Filed Feb. 18, 1966

FIG. 1

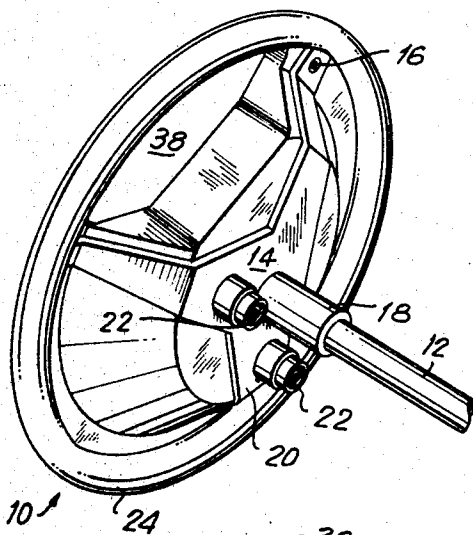


FIG. 2

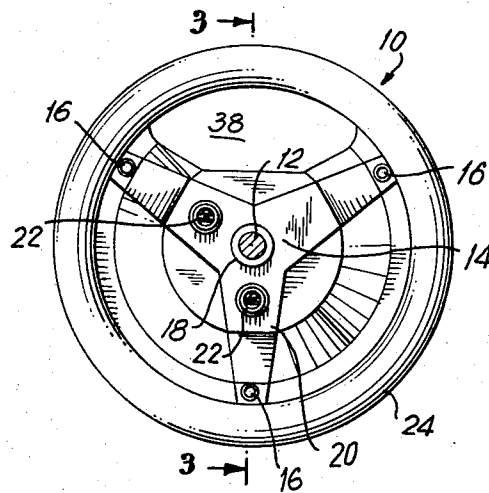
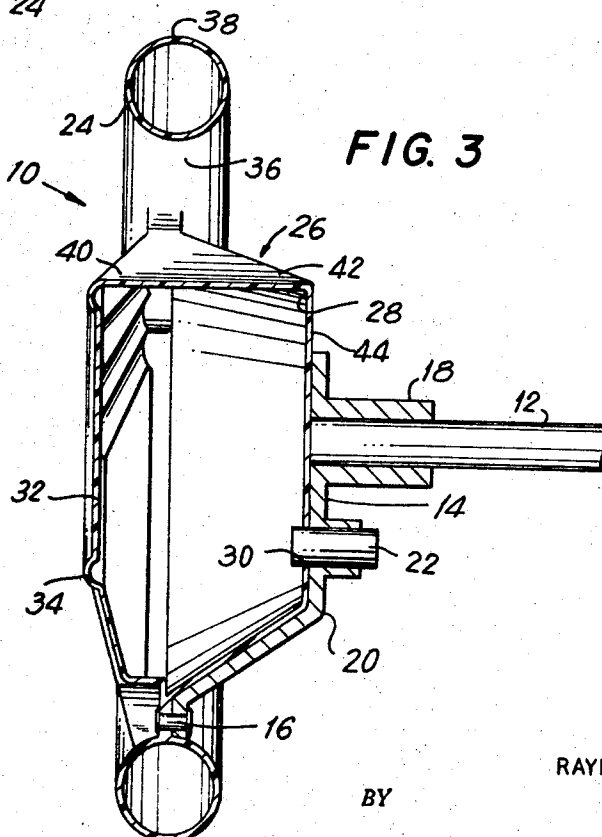


FIG. 3



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3,415,219

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Filed Feb. 18, 1966, Ser. No. 528,630
3 Claims. (Cl. 116—139)

ABSTRACT OF THE DISCLOSURE

A steering wheel for use in a toy vehicle formed of molded plastics material having a depressible chamber integrally formed with the rim which on manual depression of an exterior wall of the chamber emits a sound simulating an automobile horn. The steering wheel includes a spoke-like support member riveted to the base of the chamber to form a mounting frame, which member has a central socket for mounting on the steering column of the toy vehicle.

The present invention relates to toys.

In particular, the present invention relates to steering wheels provided with horns and adapted to be used with a toy vehicle such as a toy automobile.

One of the most attractive features of a toy vehicle which has its own steering wheel, insofar as the young operator of such a toy is concerned, is the ability of manipulating the steering wheel so as to produce a sound simulating that of an automobile horn. While there are known toy vehicles having steering wheels provided with horns, at the present time the cost of these devices is relatively high as a result of the complex nature of the structure as well as because of the necessity of assembling several units to form the final steering wheel and horn assembly.

It is, therefore, a primary object of the present invention to provide for a toy vehicle a steering wheel and horn assembly far simpler and far less expensive than the conventional steering wheel and horn structures provided for toy vehicles.

In particular it is an object of the invention to provide a structure where both the steering wheel and practically the entire horn structure can be inexpensively molded from a suitable plastic composition.

Furthermore, it is an object of the invention to provide a structure of the above type which is so simple that no matter how roughly it is treated by a child it will nevertheless continue to operate reliably.

Furthermore, it is an object of the invention to provide a steering wheel and horn structure which can be easily and reliably manipulated both from the standpoint of turning the steering wheel and actuating the horn.

Furthermore it is an object of the invention to provide a steering wheel and horn assembly structure which can be very securely mounted on a steering column for transmitting through the latter rotary motion of the steering wheel to the vehicle wheels such as the front wheels thereof.

The invention thus includes, for use in a toy vehicle, a rotary steering wheel which has, as an integral part thereof, a wall means defining a hollow chamber. This wall means is formed with an opening through which the hollow chamber communicates with the outer atmosphere and the wall means is formed at least in part by an elastic wall which can be manipulated for the purpose of reducing the volume of the chamber while expelling air out of the latter through the above opening to the outer atmosphere. When this elastic wall is released it will, due

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to its own inherent resiliency, return to its initial condition, drawing air back into the hollow chamber through the latter opening. The wall means carries in its opening a sound-producing means which automatically produces a sound simulating that of an automobile horn in response to movement of air through the opening of the wall means, and thus with this simple structure it is possible to provide a rugged inexpensive assembly of a steering wheel and horn for a toy vehicle.

The invention is illustrated by way of example in the accompanying drawings which form part of the application and in which:

FIG. 1 is a perspective illustration of a steering wheel and horn assembly according to the present invention as seen from the rear of the steering wheel at the part thereof which is connected to a steering column which is fragmentarily illustrated in FIG. 1;

FIG. 2 shows the structure of FIG. 1 as it appears when looking at the rear of the steering wheel, the plane of FIG. 2 being taken perpendicularly through the steering column;

FIG. 3 is a longitudinal sectional elevation taken along line 3—3 of FIG. 2 in the direction of the arrows.

Referring now to the drawings, it will be seen that the steering wheel 10 illustrated therein is connected with the steering column 12 which is in turn connected in any known way to wheels such as the front wheels of a toy vehicle so that in response to turning of the steering wheel 10 and the steering column 12 the front wheels will turn for the purpose of steering the vehicle. A support means 14 is fixed on the one hand to the steering column 12 and on the other hand, by rivets 16, to the steering wheel 10 so as to support the latter on the steering column 12 and so as to transmit rotary movement of the steering wheel 10 to the steering column 12. The support means 14 includes a socket 18 (FIG. 3) which receives the upper end of the steering column 12 and which is fixed to this upper end of the steering column 12 in any suitable way.

The support means 14 has a plurality of arms 20, three in the illustrated example. In the particular embodiment shown in the drawings, two of these arms 20 are formed with openings which carry sound-producing means 22, respectively, so that when the horn structure described below is manipulated a sound simulating that of an automobile horn will be provided.

Referring now more specifically to the structure shown in the drawings, the steering wheel 10 includes an outer hollow tubular rim 24 which surrounds and is integrally connected with a wall means 26 which defines a hollow chamber 28. This wall means 26 is formed with an opening 30 through which the wall means communicates with the outer atmosphere. Also, the wall means 26 includes an elastic wall 32 which can be manipulated by the operator for decreasing the volume of the chamber 28 while expelling air out of the latter through the opening 30 to the outer atmosphere. When the elastic wall 32 is released it will return, due to its own inherent resiliency, to its initial condition shown in FIG. 3, while simultaneously drawing air back into the chamber 28 through the opening 30. It will be noted that it is in this opening 30 that one of the sound-producing means 22 is situated, and this sound-producing means includes a vibratory reed or the like which automatically responds to flow of air in at least one direction through the sound-producing means for producing a given sound. In the illustrated example this sound of course simulates that of an automobile horn.

As is apparent from FIG. 3, the elastic wall 32 is suitably corrugated and curved along its outer portion 34 so as to increase its flexibility.

The wall means 26 extends along only part of the inner periphery 36 of the rim 24 so as to provide with the rim

24 a space 38 (FIGS. 1 and 2) facilitating grasping of the rim 24 by the operator.

A plane which is perpendicular to the steering column 12 and which includes the inner periphery 36 as well as the outer periphery 38 of the rim 24 passes through the wall means 26 which defines an outer hollow dish portion 40 on one side of this plane and an inner hollow dish portion 42 on the other side of this plane, and this inner dish portion 42 includes an inner wall 44 of the wall means 26. This inner wall 44 is opposed to the outer elastic wall 32.

The entire steering wheel 10 together with the wall means 26 are molded from a suitable resilient, flexible plastic in two pieces which are joined to each other along a parting line situated at the plane which is perpendicular to the steering column 12 and which includes the inner and outer peripheries 36 and 38 of the rim 24. At this parting line the pair of molded parts can be fused to each other in a well known manner so as to form the one-piece unitary assembly of the rim 24 and wall means 26 which forms the entire steering wheel 10.

As was indicated above the support means 14 is directly riveted by rivets 16 to the steering wheel 10. This support means 14 is in the form of a suitable metal plate having the three arms 20 extending radially from the socket 18 in the manner shown most clearly in FIG. 2. The arms 20 are bent so as to extend along the inner wall 44, in engagement with the latter, as well as along the tapered portion of the dish part 42 of the wall means 26, and it is the outer ends of the arms 20 which are connected by the rivets 16 to the steering wheel at the region of its rim 24. Two of the arms 20 are formed with openings aligned with openings in the inner wall 44 and fixedly carrying in these openings the pair of sound-producing means 22.

Thus, with this simple rugged construction the horn forms an integral part of the steering wheel and does not take the form of a separate unit which must be assembled with the remainder of the steering wheel. The operator need only push the elastic wall 32 inwardly toward the inner wall 44 in order to actuate the horn.

What is claimed is:

1. For use in a toy vehicle, a rotary steering wheel of molded plastics material comprising an outer rim and wall means integrally and concentrically formed within said rim defining a hollow chamber, said wall means being formed with an opening through which said chamber communicates with the ambient atmosphere and said wall

means having an outer hollow dish portion defining an elastic wall which can be depressed for decreasing the volume of said chamber while expelling air therefrom through said opening, said elastic wall when released restoring itself to its original condition while drawing air into said chamber through said opening, sound producing means carried by said wall means in said opening thereof for producing a sound simulating an automobile horn in response to movement of air through said sound producing means on depression of said dish portion, said wall means including an inner wall opposed to said outer elastic wall, and support means for supporting said steering wheel on a steering column secured to said steering wheel at said inner wall.

2. The combination of claim 1 wherein said wall means extends only part of the way along said rim to define with the latter a space extending along an inner peripheral portion of said rim for facilitating the manipulating thereof by the operator, said support means having a center socket and plurality of arms extending along said inner wall at the exterior thereof to the region of said rim, said arms being angularly distributed about said socket and having outer ends fastened to said steering wheel in the region of the rim thereof.

3. The combination of claim 2 wherein said opening of said wall means extends through said inner wall and one of said arms so that said sound producing means is carried in said openings of said one arm and wall means, said socket being adapted for securement to a steering column.

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U.S. Cl. X.R.

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