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BALLOON ACTUATED AIR SUPPORTED VEHICLE

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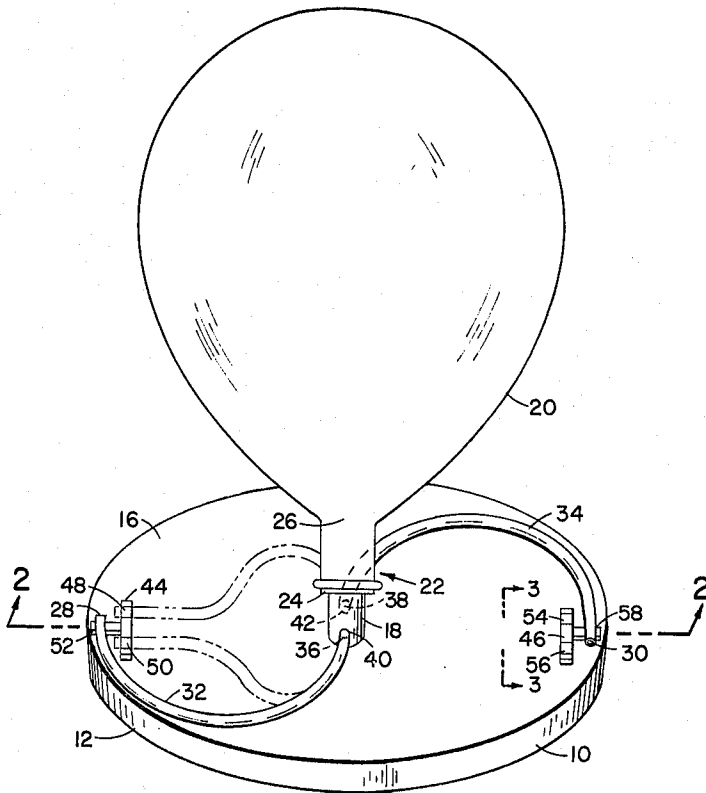


FIG. 1

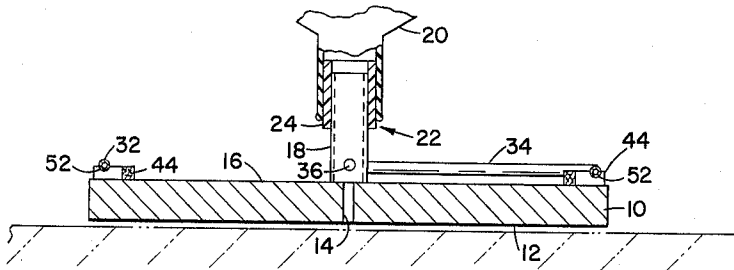


FIG. 2

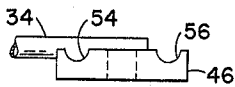


FIG. 3

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BALLOON ACTUATED AIR SUPPORTED VEHICLE

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1 Claim. (Cl. 46—88)

This invention relates to toys and entertainment devices of the motion variety, and more particularly to a self-powered, air-supported, moving platform, spinning top or scooter.

In the field of toys, perhaps the greatest interest lies in those which provide or involve motion. This is especially true of toys which are capable of being self-propelled, and, the manufacture and sale of millions of wind-up, electrically and gasoline-powered toy cars, trains and planes testify to this. Many of such toys have provided more than mere entertainment and have been of tremendous importance in the illustration and teaching of both old and new physical concepts of locomotion. By their use, both children and adults have gained considerable working knowledge of principles which are projectable into full size vehicles. Perhaps the best illustration of such a teaching aid, in conjunction with entertainment, has been that of the model airplane.

In the past few years a new class of vehicles has appeared and has been the subject of much experimental interest, and I refer to air-cushioned vehicles. Such vehicles ride on an air film or cushion just above a road, water or other relatively unobstructed surface. It is the object of the present invention to provide a toy which adapts and illustrates the principle of such vehicles, and which, in addition, is self-propelled without the necessity of a mechanical, electrical or gasoline motor.

In accordance with the invention, a vehicle body in the form of an air scooter or air platform is constructed with a smooth bottom surface. A small hole is made at the center of gravity of the platform and thru the platform from top to bottom. Air from a balloon attached to the top of the platform is fed vertically downward thru this hole to provide a film of supporting air between the bottom surface of the platform and any flat smooth supporting surface. To provide horizontal locomotion, laterally positioned jets (or single jet) are also coupled to the balloon air supply. Due to the frictionless support between the platform and the surface on which it is supported by the air film, a very low volume of jet exhaust through these jets is sufficient to impart a substantial movement to the scooter.

Other objects, features and characteristics of the invention will be pointed out in the following description and claim and are illustrated in the accompanying drawings, which disclose, by way of example, the principles of the invention and their mode or modes of application and in which:

FIG. 1 is a pictorial view of an embodiment of the invention;

FIG. 2 is a section view along the lines 2—2 of FIG. 1; and

FIG. 3 is an enlarged view along the lines 3—3 of a section of FIG. 1.

Referring now to the drawings platform 10 is constructed of a light wood, plastic or metal material. Its overall size may vary and typically it would be formed of a circular disk, three to six inches in diameter. The bottom surface 12 of platform 10 is a smooth and flat with a pin size or small hole 14 providing an air passageway from top side 16 of platform 10 to bottom surface 12. Top side 16 of platform 10 incorporates means for providing a source of air through hole 14 and providing lateral propulsion for platform 10. These means include hollow tube 18, which communicates with small hole 14 and is attached to top side or surface 16 of plat-

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form 10 and rubber toy balloon 20, having a reinforced rubber or plastic neck portion 22 adapted to fit over hollow tube 18. As shown, neck portion 22 of balloon 20 includes a section of flexible rubber or plastic tubing 24 inserted in neck portion 22 to provide reinforcement (alternately neck of balloon may be made more rigid) in order to facilitate coupling of balloon 20 to hollow tube 18 after the balloon has been inflated (by pump or with the mouth). Thus balloon 20 after being inflated can be pinched at point 26 to prevent air from escaping and at the same time leaving neck portion 22 expanded (the end would collapse if not so reinforced) to readily fit over hollow tube 18. Tubing 24 is, of course, a proper inner and outer diameter to snugly fit both balloon 20 and hollow tube 18.

With balloon 20 inflated and connected as described to tube 18, and finger pinch at point 26 removed to allow air to flow from balloon 20 thru hole 14, platform 10 may now be supported by the air exhaust from hole 14 on a smooth flat supporting surface by virtue of air escaping between bottom surface 12 and the supporting surface.

As discussed above, lateral movement or travel of platform 10 is achieved with very little force, and, as illustrated, this force is provided by reaction jets or exhaust outlets 28 and 30 of tubes 32 and 34 which are supplied with air thru opposite passageways 36 and 38 of tube 18 to which ends 40 and 42 of tubes 32 and 34, respectively, are connected. Tubes 32 and 34 are flexible, typically of rubber or plastic tubing, and may be variably positioned to vary the direction of jet force. To facilitate such positioning, tubular support members 44 and 46 are provided with tubular support member 44 including grooves 48, 50 and 52 with each groove adapted to hold in position exhaust outlets 28 and 30 of tubes 32 and 34. Similarly, tubular support member 46 includes grooves 54, 56 and 58 for the same purpose. With this selection of grooves, platform 10 may be directed either in a single direction or, if tubes 32 and 34 are in the position illustrated, platform 10 will be caused to rotate, and due to at least some inherent unbalance, platform 10 will move along a flat surface while at the same time performing a rotating motion. The overall effect is that the path followed by platform 10 will be that of a spiral. Since the air cushion, or air bearings, support of the assembly is virtually frictionless, the jet air flow causing the spin can be kept small, and the assembly can be made to float, and spin, for a considerable time, on the order of 45 seconds for a moderate size balloon.

While there has been shown, described and pointed out the novel features of the invention as applied to the embodiment shown, it will be understood that various omissions and substitutions and changes of form and detail of the device illustrated, and in its operation, may be made by those skilled in the art, without departing from the spirit of the invention which is a self-propelled and self-sustaining air-supported vehicle. For example, the shape and thickness of platform 10 may vary provided it is maintained reasonably light in weight. The reaction jets may take on varying configurations and may, for example, be disposed to propel the vehicle in a single direction as shown by phantom lines. Likewise, the means of coupling balloon 20 to hole 14 for delivery of the sustaining air may vary, it only being necessary to provide a reasonable reservoir of air and means of connecting and disconnecting it conveniently. Accordingly, it is the intention that the invention be limited only as limited by the scope of the following claim.

I claim:

A self-powered, air-supported vehicle comprising:

(A) a substantially circular platform member having a first and second opposite surfaces,

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- (1) said first surface being smooth and flat,
- (2) said second surface being connected to said first surface by a small hole positioned at the center of said platform member;
- (B) air coupling means mounted on said second surface and including a tubular member having an air passageway communicating with said small hole; 5
- (C) an inflatable balloon having a reinforced neck region adapted to be slipped over and make an air-tight connection with said tubular member; 10
- (D) propulsion means for propelling said platform comprising first and second reaction jets, said jets being coupled to and receiving air from said tubular member; and
- (E) positioning means for directionally positioning 15

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said jets in a plurality of selected directions parallel to said first surface, so that said platform member can move selectively in at least a substantially stable non-spinning forward direction or in a substantially unstable spinning forward direction.

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