

April 2, 1963

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3,083,979

SPHERICAL VEHICULAR DEVICE

Filed March 2, 1960

2 Sheets-Sheet 1

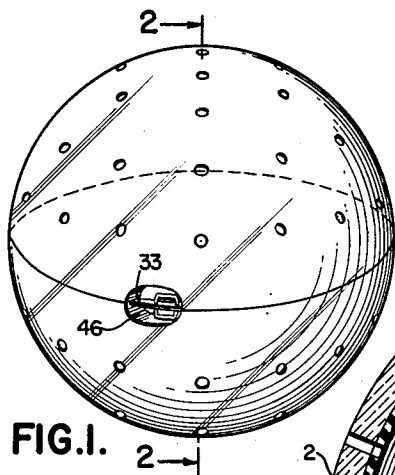


FIG. 1.

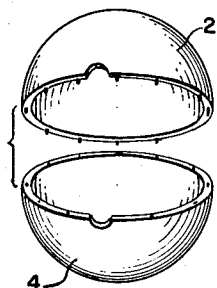


FIG. 3.

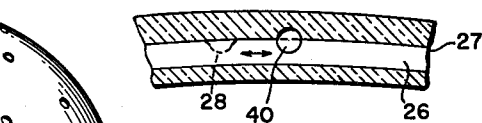


FIG. 8.

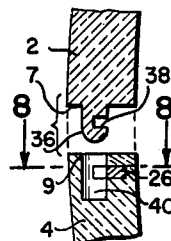


FIG. 7.

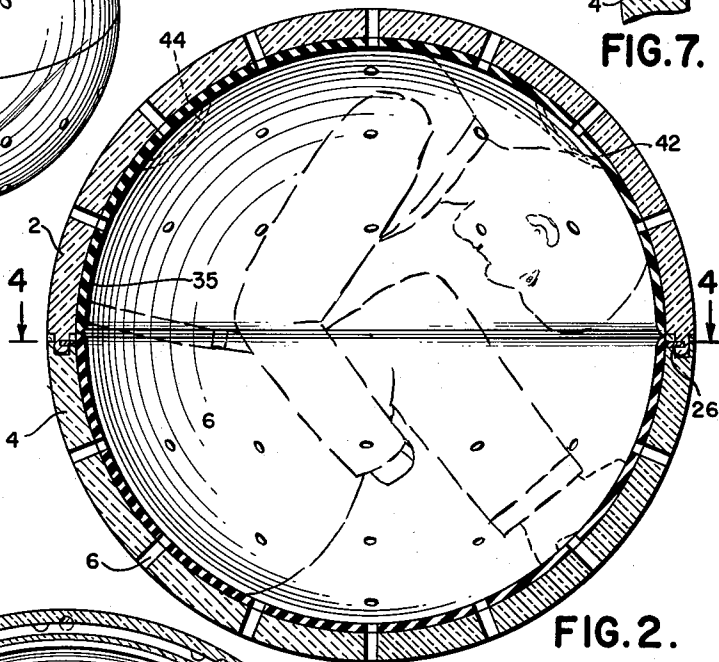


FIG. 2.

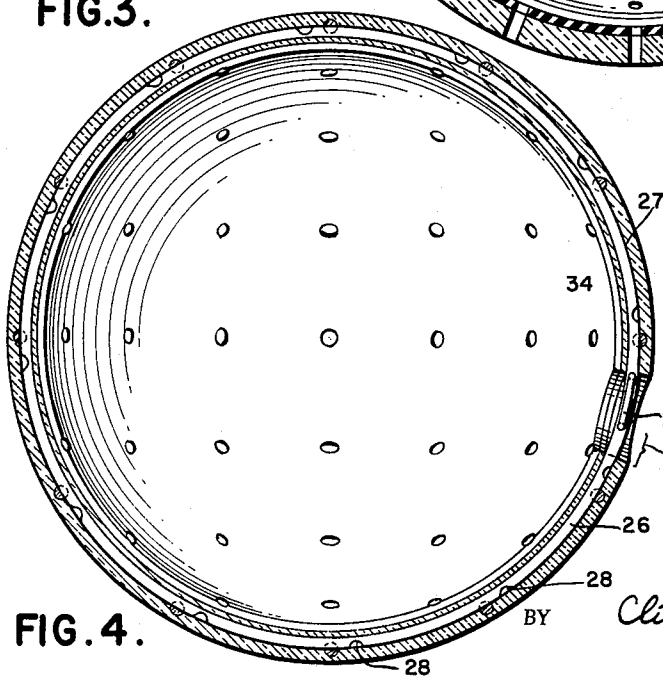


FIG. 4.

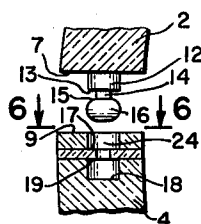


FIG. 5.

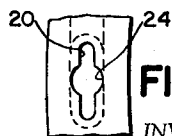


FIG. 6.

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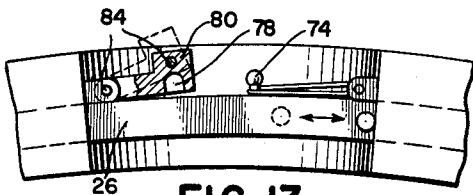


FIG. 13.

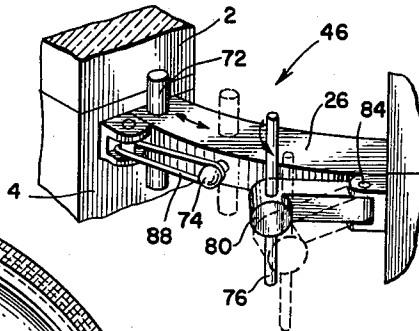


FIG. 14.

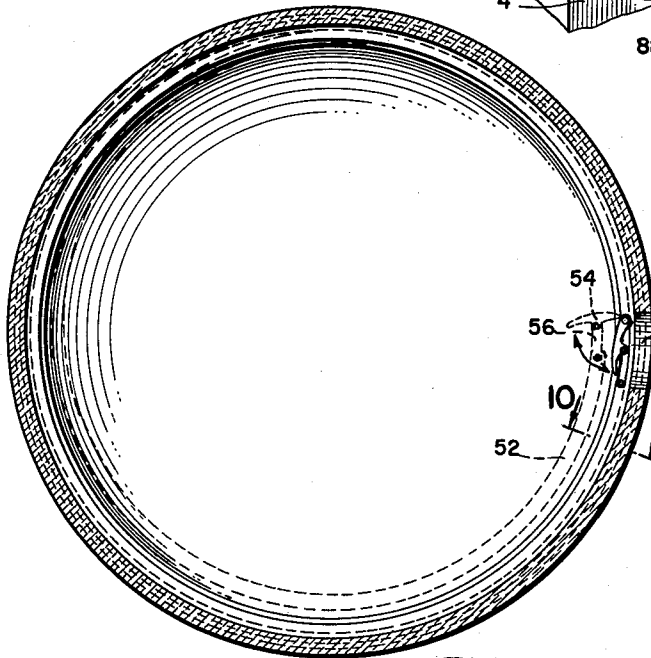


FIG. 9.

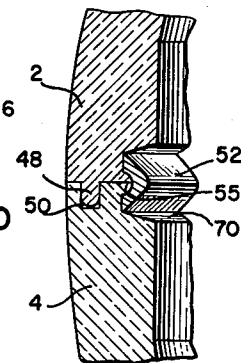


FIG. 10.

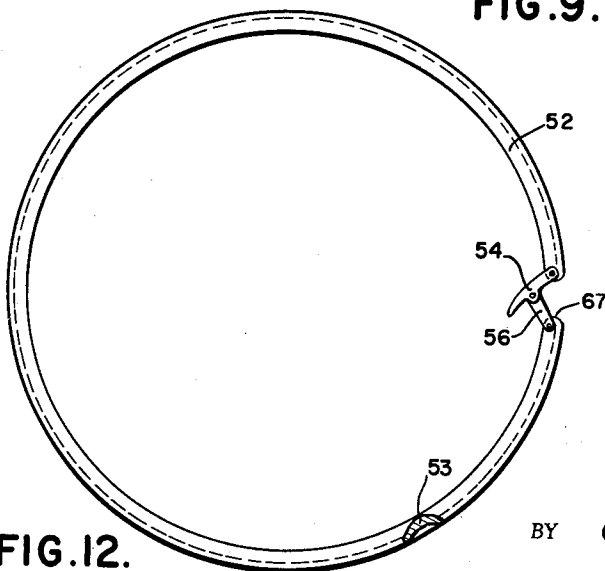


FIG. 12.

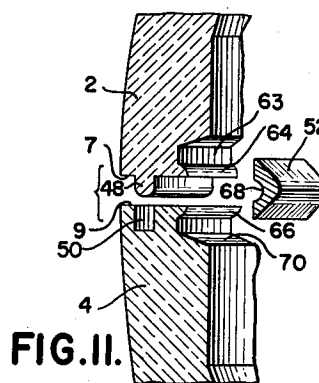


FIG. 11.

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SPHERICAL VEHICULAR DEVICE

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Filed Mar. 2, 1960, Ser. No. 12,393

2 Claims. (Cl. 280—78)

The present invention relates generally to vehicular amusement devices and more particularly to a novel spherically shaped container specifically adapted as a carriage for human beings, preferably children.

A primary object of the instant invention is to provide sport and/or amusement through novel means of vehicular locomotion, the medium for such locomotion being a carrier of spherical configuration, the user of the apparatus being encased therein.

A further object of this invention is to provide an especially constructed spherical device in which a person can be compactly encased, person and device rolling about as a single integral unit there being no relative motion therebetween.

Another object of the present invention is to provide an apparatus which will accommodate the human form in embryonic fashion thereby affording a completely protective encasement of the human body during the course of directionally unrestricted planar motion.

A still further object of the present invention resides in the provision of means for effectuating closure of the apparatus about the human body, such closure being accomplished easily and quickly by the child using the device.

Still another object of this invention is the provision of a quick release mechanism permitting instant separation of passenger and spherical apparatus in the event such rapid escape becomes desirable.

Another object of the present invention is to provide an amusement device for children which is pleasing in appearance, easily manufactured and readily assembled or disassembled.

These and further objects will become more readily apparent during a reading of the specification when examined in connection with the accompanying drawings, wherein:

FIGURE 1 is a perspective view of the fully assembled amusement device of the present invention;

FIGURE 2 is a vertical transverse sectional view taken substantially along the plane of line 2—2 of FIGURE 1;

FIGURE 3 is an expanded perspective view showing the instant amusement device in disassembled form;

FIGURE 4 is a horizontal transverse sectional view taken substantially along the plane of line 4—4 of FIGURE 2, wherein is shown a slide-ring quick release closure mechanism;

FIGURE 5 is a cross-sectional expanded elevation view of a slide-dowel closure means, a first embodiment of the instant invention;

FIGURE 6 is a plan view of one of the female members of the slide dowel closure elements of the said embodiment of the instant invention taken along line 6—6 of FIGURE 5;

FIGURE 7 is a cross-sectional expanded elevation view of the slide-ring quick release closure elements of a second embodiment of the present invention;

FIGURE 8 is a plan view of the female member of the slide-ring closure elements of the said second embodiment of the instant invention taken along line 8—8 of FIGURE 7;

FIGURE 9 is a cross-sectional view of the invention wherein is illustrated a third closure embodiment of the device comprised of an expandable ring quick-release mechanism as shown in said FIGURE 9 in both relaxed and expanded positions;

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FIGURE 10 is a perspective view of the expandable ring embodiment taken along line 10—10 of FIGURE 9 and illustrating said expandable ring in expanded position;

FIGURE 11 is a perspective view of the expandable ring embodiment wherein the male and female closure elements are shown disassembled, the expandable ring being shown in relaxed position;

FIGURE 12 is a plan view of the expandable ring element itself in relaxed position, a cross-section of said expandable ring also being incorporated in said FIGURE 12;

FIGURE 13 is a plan view of a quick-release mechanism adapted to the sliding ring second closure embodiment illustrated in detail in FIGURES 7 and 8; and

FIGURE 14 is a perspective view of said sliding ring quick release mechanism.

Referring to the drawings, wherein like numerals designate like parts throughout, the numeral 1 designates generally the spherical vehicular device of the present invention which is best viewed in its entirety in FIGURES 1 and 3. The apparatus herein disclosed is comprised of a pair of hemispherical shells 2 and 4 shown in disassembled form in FIGURE 3 of the drawings.

Consonant with the aforesaid objects of the invention, a human being, particularly a child, utilizes the device by assuming a position therein as shown in FIGURE 2. Assumption of this posture is expeditiously realized by first sitting or crouching within the lower half shell 4 while grasping upper half shell 2 by straps 42 and 44 and by subsequently lowering said half shell 2 into position upon half shell 1.

According to the first embodiment of the instant invention illustrated in FIGURES 5 and 6, dowels 16, intermittently spaced along peripheral edge 7 of hemispheric shell 2 are guided to register within similarly intermittently spaced sockets 24 disposed along peripheral edge 9 of hemispheric shell 4. Once in registry, upper shell 2 is turned several degrees, either clockwise or counterclockwise, with relation to lower stationary shell 4. By virtue of the bayonet assembly utilized, said upper and lower shells are united and held securely in edge abutting relation, the child therein being completely encased within the spherical unit thus formed. In detail, the basic embodiment referred to immediately heretofore is structurally comprised of male dowel elements 16 each having a narrow shank portion 14 located between base 12 and dowel 16. Dowel elements 16, which are adapted to register within socket elements 24, pass through said female socket members to stop 18 located at the bottom of said socket members. By turning upper shell 2 several degrees as heretofore described shank portion 14 of said dowel passes between slot 20, shoulders 13 and 15 of dowel 16 being held rigidly between ledges 17 and 19 of slot 18 within said female socket member.

Separation of upper and lower hemispheric shell members may be accomplished by reversing the above procedure.

While the foregoing bayonet like closure means is designated the first embodiment of the instant invention, its utilization, although inexpensive and relatively easy of manufacture, is restricted to spherical vehicular devices of the instant nature earmarked for supervised used or utilization by adults, the reason therefore being the dangers inherent because of entrapment in the apparatus where rapid escape therefrom is mandatory. This first embodiment, therefore, should be restricted in use to children under supervision or to adults using the apparatus for amusement, sport or exercise.

A second embodiment, and one employing a species of a quick release mechanism is illustrated in FIGURES 1, 2, 3, 4, 7 and 8. A further modification of this second embodiment is illustrated in FIGURES 13 and 14 wherein

is disclosed augmentation of said quick release mechanism to include incorporation of semi-automatic quick release means.

More specifically and to the end of providing means whereby entrapment within the device is obviated, sliding ring 26 is housed within lower hemispheric shell 4 directly beneath the surface of peripheral edge 9. Therein, ring 26 is adapted to slide within housing or groove 27 a distance equivalent to the permissible movement 33 of handle 32. It will be observed in both FIGURE 1 and FIGURE 4 that opening 46 within the casing of sphere 1 provides access to handle 32 from either within or without sphere 1. The importance of this feature will become readily apparent upon realization of the function of sliding ring 26.

Referring to FIGURE 7 of the drawings it is seen that dowel or peg 36 is disposed for engagement within female socket 40. Again, as in the first embodiment previously disclosed, dowels 36 are intermittently spaced along the edge 7 of upper shell 2. Similarly spaced along edge 9 of lower shell 4 are female sockets 40. Semi-circular notches 28 are positioned intermittently along the outside edge of sliding ring 26, the distances therebetween being equivalent to abovementioned distance 33. Notches 28, being slightly greater in radius of curvature than dowels 36, function to permit said dowels to pass freely through ring 26 and into female sockets 40. Once in registry with said female sockets, dowels 36 are restrained against outward movement from said sockets by circumferentially sliding ring 28 within track or groove 27 a distance designated as 33 on FIGURE 4 of the drawings. Accomplished thusly is the movement of notches 28 out of alignment with dowels 36, thereby replacing said notches with solid regions of sliding ring 26.

In this manner, furrows 38 cut within said dowels are filled with said solid regions of said sliding ring 26, movement of said dowels relative to said female sockets, thereby being precluded. Accordingly, it is seen that movement of handle 32 through predetermined distance 33 will quickly and readily occasion assembly or disassembly of hemispheric shells 2 and 4 from either within or without the present vehicular spherical device.

While the quick release sliding ring embodiment hereinabove described does obviate the danger of entrapment of a child within the device, a further embellishment of this safety feature is contemplated within the purview of this invention to be utilized, for example, by very young children possibly lacking of strength required to move handle 32 through the predetermined distance.

To that end, reference is made to FIGURES 13 and 14 of the drawings wherein a semi-automatic sliding ring moving device is illustrated. The section of sliding ring 26 visible in said figures represents that section of the said sliding ring appearing within opening 46 heretofore described. In lieu of handle 32, utilized in the aforesaid second embodiment, restrainer cap 80 is substituted therefor. Well 78 recessed within restrainer cap 80 is adapted to envelop dog 74 which is integral with sliding ring 26 thereby restraining sliding ring 26 against movement in the direction of bias created by the spring loaded action of releasably restrained resilient spring biased member 88. Restraining cap member 80 is pivotally connected through pin 84 to the portion of lower hemispheric shell 4 adjacent the outside edge of sliding ring 26. Lifting of rod 76 which forms an integral part of restrainer cap 80 will raise said restrainer cap from dog 74, thus freeing sliding ring 26 for movement in its biased direction. As previously disclosed, notches 28 intermittently spaced along the outside edge of sliding ring 26 are arranged to permit registry between dowels 36, female socket members 40 and said notches 28. According to the semi-automatic quick release mechanism of this invention, registry of the aforesaid members is achieved in the event sliding ring 26 is urged to a position defined by stop bar 72 being in contiguity with the wall of pas-

sage 46. Registry being accomplished upper hemispherical shell 2 can easily be lifted away from lower hemispherical shell 4, freeing the passenger therein from the encasement should rapid escape therefrom become desirable. Again, access to this embellished quick release mechanism is available from within or without the spherical vehicular device. Any child, age notwithstanding, would instantly, by simply lifting cap 80 from dog 74, be free of the present apparatus.

A third embodiment of the instant invention is illustrated in FIGURES 9-12 of the drawings. According to this embodiment peripheral edge 7 of upper hemispherical shell 2 is flanged with continuous peripheral tongue 48. When placed in edge abutting relation, edge 7 lies circumferentially contiguous with edge 9, tongue 48 being received peripherally by groove 50 within said edge 9. The means for securing said hemispheric shells to one another is illustrated separately in FIGURE 12 of the drawings and is designated by numeral 52. Ring 52 according to this embodiment is A-shaped in cross-section and is designated thusly by numeral 53. Positioned within channel 70 formed on the inside surface of the unitized sphere 1 as the complement of milled portions 63 and 65 of shells 2 and 4 respectively, expandable ring 52 being adapted to envelop and subsequently seize within groove 68, abutment 55 being formed of complements 64 and 66 within said channel 70. Expansion of ring 52 is expeditiously accomplished from within the spherical vehicular device through exertion of ample force upon pivoted member 54, said force being transmitted to arm link 56 and ultimately against end 67 of ring 52 thereby effectuating expansion thereof. Expansion of ring 52 in accordance with the foregoing further serves to countersink said ring within said channel 70 locking it therein to thereby provide an unobstructed surface within sphere 1, a feature preferable from a safety vantage. Quick release of upper shell 2 from lower shell 4 is accomplished with facility by returning pivoted member 54 to the relaxed position, this being effectuated from within or without spherical vehicle 1 by access through passage 46.

According to the foregoing disclosure it is seen that a human being may become self-encased within the spherical vehicular apparatus of the present invention. It is further seen that said human being, while assuming the crouched posture as shown in FIGURE 2 of the drawings, may enjoy the sensation of rolling end over end, sideways or otherwise, without danger of injury. The quick release mechanisms described hereinabove provide for instantaneous egress from the device should such become desirable.

While it is understood that materials of construction may be varied, methyl methacrylate polymers commercially known as "Plexiglas" or "Lucite" have been used successfully. While the transparency of this material enhances its preferability, it is understood that air-vent orifices 6 occurring frequently through the spherical shell may also function as observation apertures in the event an opaque or nonlight transmittable material, e.g., metal, is utilized in construction. A similar condition prevails when a non-transparent padding material covers inner surface 34; however, as in the case of opaque materials utilized in the sphere construction, apertures in the padding material are arranged for alignment with the air-vent orifices in the shell surface, thereby obviating the problem of visibility.

It is further understood that alterations may be made without departing from the spirit of the invention, the invention being not limited to that which is shown in the drawings and described in the specifications but only as defined in the appended claims.

What is claimed is:

1. A spherical vehicular device comprised of a pair of smooth outside surfaced congruous hemispheric shell members, arranged in edge abutting relation, the edge of one of said hemispheric shell members containing a plu-

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rality of spaced, groove containing dowels protruding therefrom, the edge of the other of said hemispheric shell members containing a plurality of spaced socket members arranged for registry with said dowels, said edge of the other of said hemispheric shell members having a peripheral channel furrowed beneath the surface thereof, a circular ring adapted to slide within said channel, said circular ring containing a plurality of spaced notches adapted for registry with said dowels and said socket members, said circular ring being substantially the thickness of said grooves contained in said dowels and slidably received thereby, a passage communicating through the surfaces of said hemispheric shell members arranged in edge abutting relation, said passage being comprised of complementary portions cut from the edge of each of said

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hemispheric shell members, means located within said passage for actuating said circular ring, movement of said means being controllable from within said passage.

2. A spherical vehicular device according to claim 1 wherein said means for actuating said circular ring is comprised of a releasably restrained spring biased member.

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