

[54] JET POWERED VEHICLE

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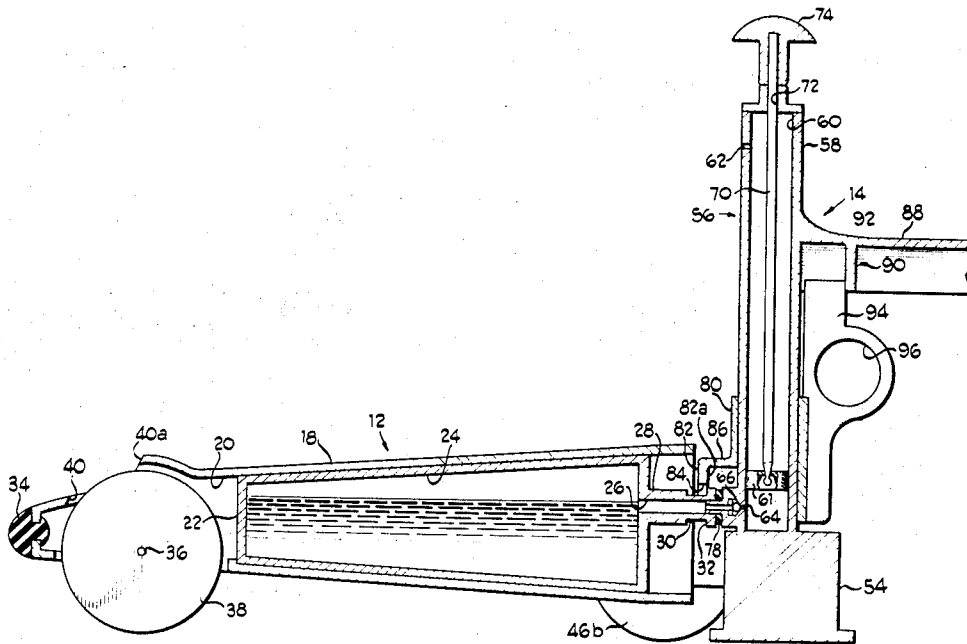
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[57] ABSTRACT

A combination jet toy vehicle and charging device wherein the vehicle includes an enclosed chamber with a rear outlet, through which a first medium, such as a liquid, may be introduced in to the chamber and the chamber charging device includes an air pump with a one-way valve for sealing engagement with the chamber outlet, and further includes a clamp means for pulling the vehicle in sealing engagement with the charging device, and trigger means for releasing the clamping device following the charging of the chamber to permit the vehicle to be propelled by means of reaction of the jet drive.

3 Claims, 4 Drawing Figures





## JET POWERED VEHICLE

## BACKGROUND OF THE INVENTION

## 1. Field of the Invention

This invention relates to toy vehicles, and more particularly, to an improved combination jet toy vehicle and charging device.

## 2. Brief Description of the Prior Art

Pertinent patents presently known to the applicant include the following:

Amdur	2,409,653
Krinsky	2,580,484
Krautkramer	2,732,657
Crandall	3,136,088

The Krinsky patent shows a combined rocket and compressed air launching station wherein the rocket is gripped in spring fingers until the force of compressed air which is fed to the rocket overcomes the force of spring retention of the rocket to permit its launching. The Amdur patent shows a toy rocket with a bulb-type compressed air feeding device and a separate retaining pin which may be released following the feeding of compressed air to the rocket to permit the launching of the rocket. The Crandall patent shows a toy jet airplane and pumping station wherein air is fed under pressure to the wings of the toy airplane and a separate retaining pin is utilized to hold the plane at the inflation station. The Krautkramer patent shows a toy jet airplane having a propellant chamber which is charged with a first propellant and then held in a clamp at a launching station which includes a one-way valve for feeding air under pressure to the propellant chamber by means of a separate pumping apparatus.

Jet or rocket toys are well received because of their rapid and dramatic acceleration and resultant effect of the flight or travel of the vehicle. Improvements in the convenience of loading or launching such devices increases the desirability of these toys and such improvements are also well received in the art. Accordingly, it is the object of this invention to provide a jet or rocket type of toy with an improved means for charging the propellant chamber and releasing the toy for travel.

## SUMMARY OF THE INVENTION

This invention is directed, in brief, to the provision of an improved jet toy and an associated charging means.

The best mode currently contemplated for carrying out the invention includes the provision of a wheeled toy vehicle with an interior chamber and a rearwardly facing, normally open outlet through which a first propellant medium, such as liquid, may be introduced; following which a charging medium, such as compressed air, may be introduced. The charging device includes an air pump and a one-way valve, which may be sealingly engaged with the chamber outlet and further includes a trigger-like retention and release latch for holding the vehicle and charging device in engagement during the charging function.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the components of the combination of this invention;

FIG. 2 is an enlarged section view through the toy vehicle and charging device of this invention;

FIG. 3 is a rear view of the toy vehicle component of this invention; and

FIG. 4 is a perspective view in detail of the release latch arrangement of the charging device of this invention.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail a specific embodiment therefor, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated.

## BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

The combination vehicle and charger assembly 10 of this invention includes a toy vehicle 12, a charger means 14 and a funnel means 16 for filling the chamber with a suitable propellant.

The vehicle 12 includes a torpedo-like body 18, having hollow interior 20. A generally cylindrical propellant chamber 22 is held within the interior 20 of body 18 and has a reduced outlet passage 26 at one end, which is considered to be the rear end of the vehicle. The outlet passage 26 is in the interior of an outwardly extending sleeve or portion 28. The sleeve 28 has an annular groove 30 near its free end, which terminates short of a free end to leave a flange 32 at the rear. The annular groove 30 and flange 32 combine to form a first retaining means.

Preferably, the vehicle body 18 has a shock absorbing nose 34 of a rubber-like or similar resilient material to protect objects against which the vehicle 18 may be directed. An axle 36 spans the front portion of the body 18 and supports the front wheel 38. Body 18 has an opening or cut out portion 40 in the area of the front wheel 38 for decorative purposes as well as to provide for clearance of the wheel 38. In addition, for decorative purposes, a slight cowl 40a is formed adjacent to the opening 40.

The funnel means 16 is rather conventional in structure comprising a first cylindrical portion 48, a second conical portion 50 and a third hollow tube 52, which can be utilized to feed a first propellant, such as water, through passage 26 into the interior of the chamber 22.

The charger means 14 of this invention includes a base 54 which supports a pump, generally indicated 56. Pump 56 includes a hollow tube 58 having a pump chamber 60 in the interior thereof. A small inlet 62 is provided near the upper end of the tube 58 for admitting a suitable fluid, such as air to the interior of chamber 60. An outlet means 64 is provided at the bottom of the chamber 60 and includes a one-way check valve 66 for permitting the egress of the fluid under pressure from the chamber 60, but preventing the ingress of fluid from the exterior. A piston 61 is provided in the interior of chamber 60 and is connected to a rod 70, which extends through openings 72 at the top of tube 58 and is connected to handle 74, so that, the handle may be thrust upwardly and downwardly to permit the ingress of air through the inlet 62, compress the air, and force it outwardly through the outlet 64 and the one-way check valve 66.

The outlet 64 includes a tubular extension 76 having an outer dimension which is substantially the same as the inner dimension of the passage 26 of the vehicle chamber. It is intended that there would be a loose sliding fit of the telescopic engagement of the tube 76 within the passage 26. A sealing ring 78 made of a suit-

able compressible material is positioned about the tube 76 adjacent the base of the pump 56. The outlet tube 76 is located at an elevation relative to a supporting surface such that its center line or axis is generally coaxial with the center line or axis of the passage 26 of the vehicle when the vehicle is located on the same supporting surface, assuming that the surface is substantially planar. Thus, when the vehicle 18 is placed adjacent the charger 14, the tube 76 may be easily and accurately inserted into the passage 26.

The charging means 14 also includes a substantially cylindrical sleeve 80 which is telescopically slidable about the tube 58. The sleeve 80 includes a laterally offset wall 82 having a vertically elongate notch or fork 84 therein. The cross dimension of the notch is such as to permit it to embrace the groove 30 in the sleeve 28, but it is smaller than the dimension of the flange 32 so that the flange 32 will abut inner surface 82a of wall 82 when the notch 84 is about the groove 30.

The wall 82 is held outwardly from the sleeve 80 by supporting webs 86 which are dimensioned and configured so as to position the surface 82a of wall 82 outwardly a distance which is substantially equal to, or slightly less than, the distance between the juncture of flange 32 and groove 30 and the exterior of tube 58 when the vehicle abuts the charger as shown in FIG. 2. By this arrangement, when sleeve 80 is slid downwardly, the notch 84 will embrace the groove 30 and bear against the flange 32 to snugly pull the sleeve 28 toward the tube 58 and create pressure on the resilient seal 78. This will provide a generally fluid tight seal for the transmission of fluid, such as compressed air, from the interior 60 of the tube 58 into the interior 24 of chamber 22.

The charger 14 includes a handle 88 which extends laterally outwardly from the side of the tube 58, preferably opposite the bottom of the outlet 64. The handle 88 includes a depending web 90 closely spaced away from the tube 58, to form a tracking slot 92, therewith, for the slidable elongate bar 94, which is connected to sleeve 80. As bar 94 moves up and down, in a generally vertical path of travel, the sleeve 80 will move correspondingly. Bar 94 has an enlargement and circular cut-out providing a finger opening 96 therein. The opening 96 and the connection of bar 94 to the sleeve 80 constitute a trigger means. In other words, it is the equivalent of a slidable or toggle-like structure which permits the latching or releasing of the notch 84 relative to the annular groove 30.

Thus, it can be seen that the combination toy vehicle charging device of this invention provides an improved and unique set for charging a simulated jet powered toy vehicle and easily and quickly releasing the same for travel. The user need merely telescopically engage the outlet of the pump with the inlet of the chamber, after filling the chamber with a suitable propellant, such as water, and subsequently pump compressed air into the chamber to create pressure behind the propellant medium. At any desired point, the pumping action may be terminated and the user may then launch the vehicle at any given time thereafter, by merely raising the bar 94 through the convenience of the finger notch 96. The user has the ability of controlling the moment of release, and the release need not be immediately after the

termination of the pumping action, nor is the release dependent upon the amount of air pumped into the vehicle. In addition, the entire latching and pumping structure is an integral unit further simplifying the use and operation of the device.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, as some modifications may be obvious to those skilled in the art.

We claim:

1. In combination, a vehicle body having a forward end and a rear end and supporting wheels for supporting the body on a supporting surface; a propellant chamber carried by said body, said chamber having a sleeve-like extension having an exterior and a hollow interior formed about an axis and defining a propellant passage through which a propellant medium may be introduced into, or discharged from, the chamber, said sleeve exterior having a first retaining surface thereon; and a charger and launcher means therefor, including a member having a base with a bottom arranged for placement on a supporting surface, and a pump supported on said base including an outlet positioned for engagement with the vehicle propellant passage when the vehicle and charger base are positioned on a supporting surface, sealing means on one of the vehicle extensions and the pump outlet for creating a seal therebetween during engagement of the extension and the outlet, and a movable retainer member on said charger and engageable with said first retaining surface to hold the vehicle and charger together in sealing engagement with respect to the vehicle propellant passage and the charger outlet, said movable retainer member on said charger being connected to a trigger means for movement between a locked position, wherein the vehicle and charger are connected together in said sealing engagement, and a release position, wherein the vehicle is free to move away from the charger, whereby the vehicle chamber may be fully charged with fluid under pressure by means of the pump and held in said fully charged condition until such time as, (following which) the trigger means (may be) is moved to the release position to thereby permit launching of the vehicle away from the charger and launching means responsive to the action of the propellant thrust outwardly of the chamber passage.

2. The combination of claim 1 wherein the first retaining member comprises an enlarged flange about the exterior of the sleeve-like extension and wherein the second retainer member includes a fork-like member of a size and shape to embrace the sleeve-like exterior of the vehicle member extension behind the flange portion thereof.

3. The combination of claim 1 wherein the charger outlet comprises a hollow sleeve positioned for coaxial orientation with the hollow interior of the vehicle propellant passage with the outlet sleeve being telescopically received within the interior of the vehicle propellant passage and wherein the sealing means comprises a resilient member which is positioned about the exterior of the launcher outlet in position for facial engagement with the enlarged flange on the vehicle extension.

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