Nov. 3, 1970 J. N. MODESTI 3,537,669

MANNED DISC-SHAPED FLYING CRAFT

Filed Feb. 5, 1968 2 Sheets-Sheet 1

FIG. 1

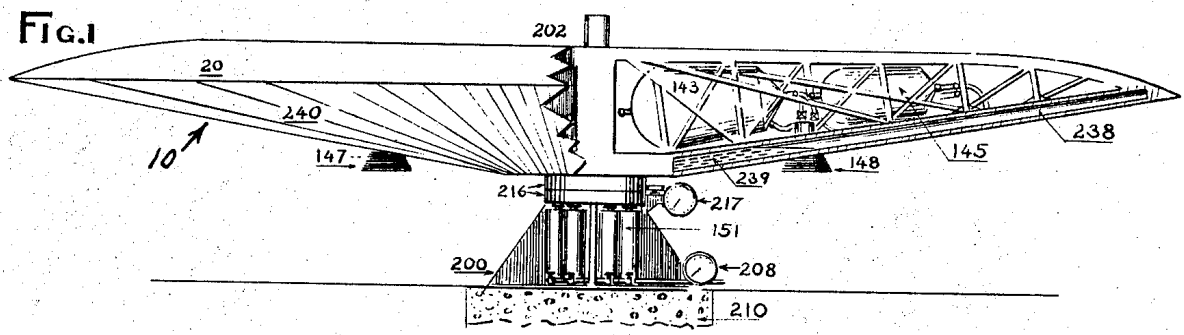

FIG. 2

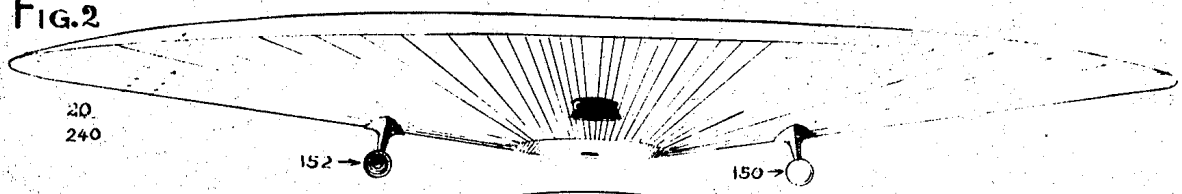

FIG. 3

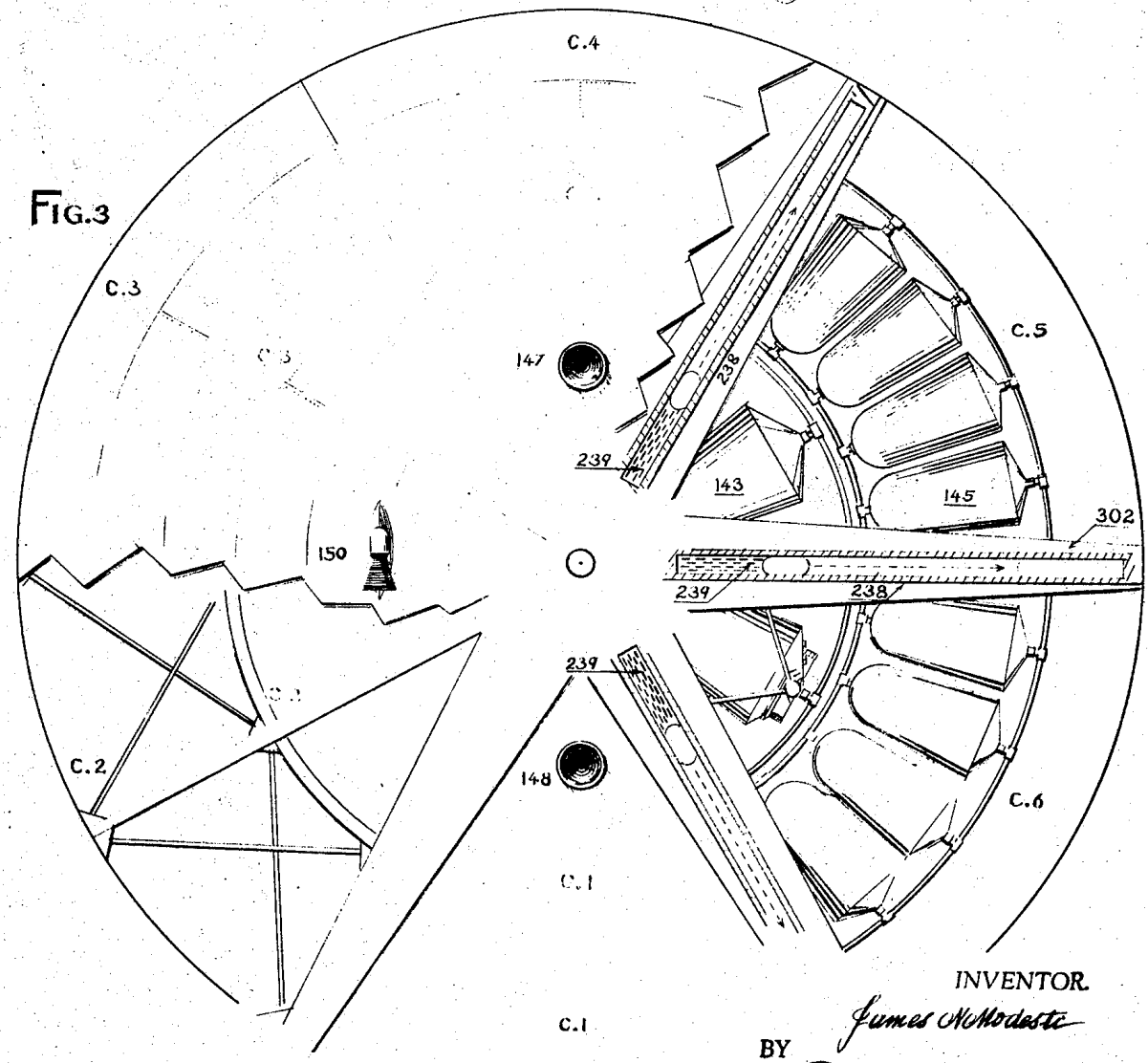

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FIG. 4

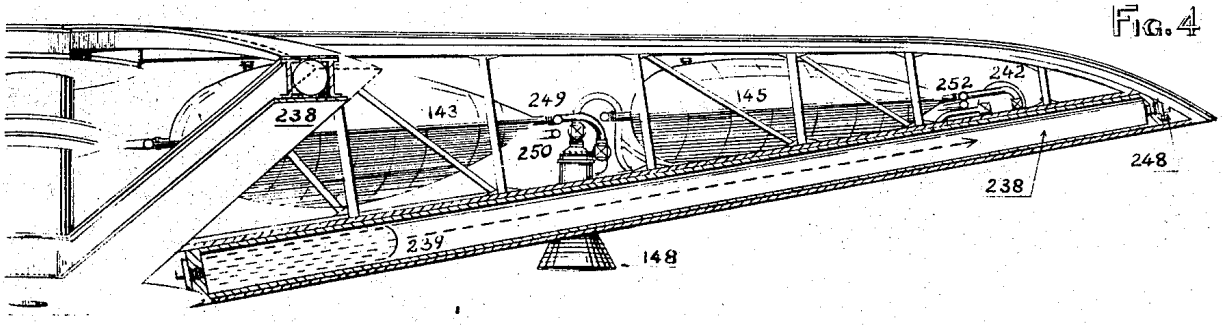


FIG. 5

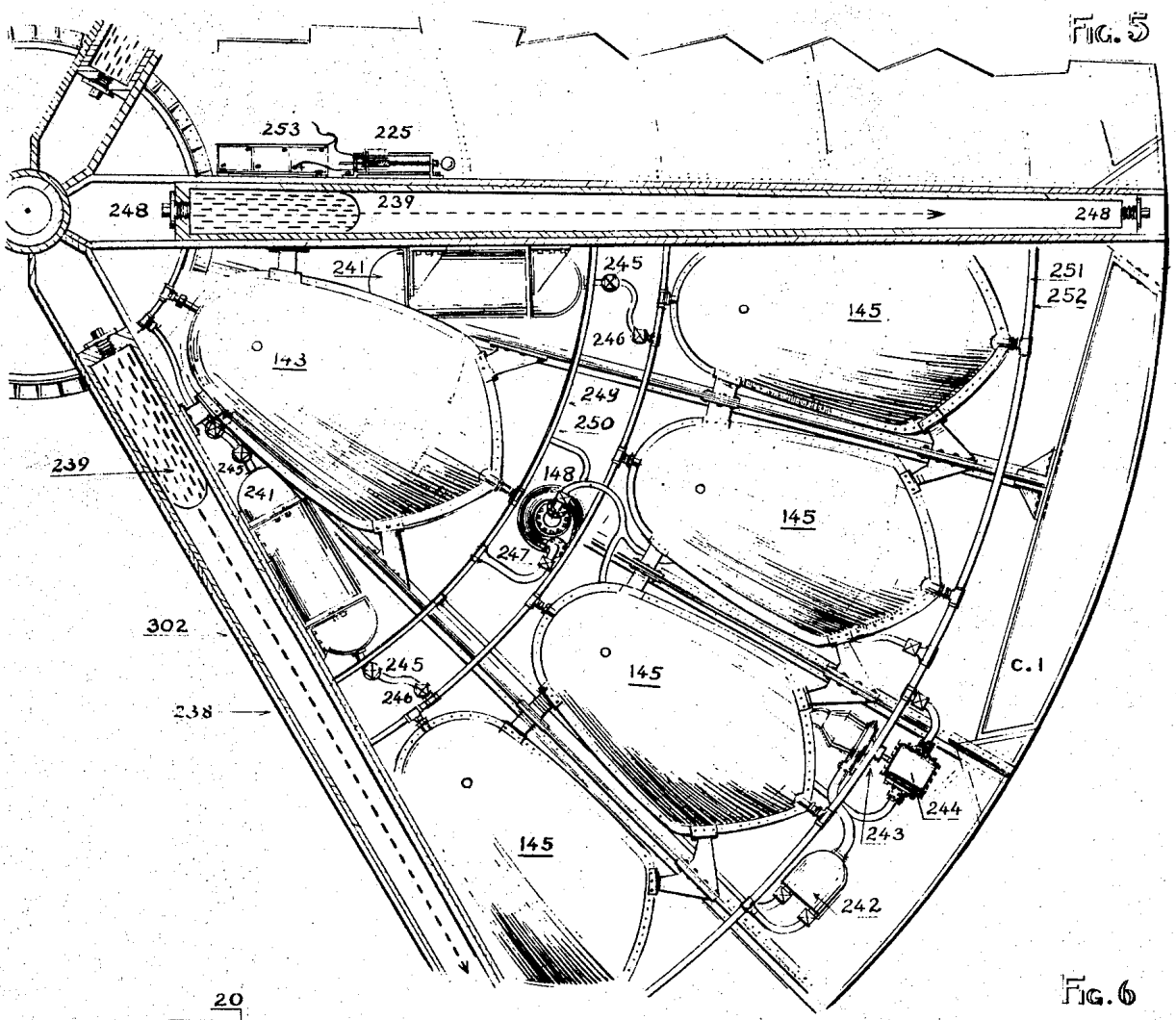
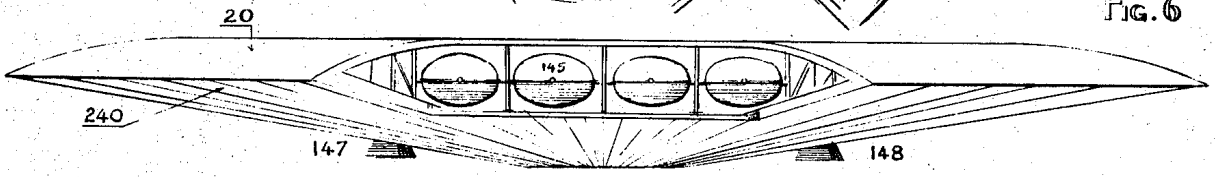


FIG. 6



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MANNED DISC-SHAPED FLYING CRAFT

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U.S. Cl. 244—23 7 Claims

ABSTRACT OF THE DISCLOSURE

An experimental and disc shaped flying craft or "spacecraft" so constructed that the bottom half of the flying craft is raised or "deflected" to a higher level from its normal horizontal position, that is, at a right angle to its axis of rotation, with an effect on the gravity pull. The flying craft has means for obtaining a cancelling effect or action on the gravity pull, by the use of centrifugal force, with a loss in weight of the disc shoped flying craft. The bottom surface of the disc shaped flying craft is conical in shape and its top surface is convex in shape. The craft is provided with radially extending tubular arms, each of which contains a supply of mercury which under centrifugal pull slides at an upward angle to the other edge of the disc shaped flying craft thereby adding mass and weight to the deflected centrifugal pull thus increasing the power of the pull.

This invention relates to experimental and disc-shaped flying aircraft, or "spacecraft" and involves improvements over the flying craft described in my prior Pat. No. 3,199,809.

The present invention is directed at improvements in the structure of the bottom half of the experimental disc, whereby the centrifugal-pull is raised or "deflected" to a higher level from its horizontal position, that is, at a right angle to its axis of rotation, with an effect on the gravity pull.

Accordingly, an important object of the present invention is to obtain a cancelling effect or action on the gravity pull, by the use of a centrifugal force, with a loss in weight of the disc.

A second object of the invention is to provide a disc-shaped flying craft of this type wherein the bottom half of the disc is conical and the top half is convex.

A third object of the invention is to provide a flying craft of this type having radially extending arms or beams which with the outer surface and structure of the bottom section of the disc form a conical shape.

A fourth object of the invention is to provide an experimental flying craft of this type with radially extending arms or beams, which contain a supply of liquid which under centrifugal pull slides at an upward angle to the outer edge of the disc thereby adding mass and weight to the defiected centrifugal pull thus increasing the power of the pull.

A fifth object of the invention is to provide a disc-shaped flying craft of this type with a launching platform or "stand" on which all necessary testing and experimenting will be conducted, prior to eventual lift off.

A sixth object of the invention is to provide an experimental craft of this type in which not all of the craft is subject to the deflected pull and wherein the weight of the liquid will compensate for the part of the disc not undergoing the deflected pull.

For a better understanding of the invention, reference is made to the following detailed description taken in connection with the accompanying drawings, wherein:

FIG. 1 is a side elevational view of the flying craft shown supported on a testing stand including launching pole and associated gauges to measure weight, height, lift off and spinning speed, parts being shown broken away.

FIG. 2 is a bottom perspective view of the flying craft in flight, the testing stand being removed, the underside of the conical shape of the bottom half of the disc being visible.

FIG. 3 is a fragmentary bottom plan view of the "experimental" flying craft, parts being shown broken away to show internal construction of the disc.

FIG. 4 is an enlarged fragmentary vertical sectional view through the experimental disc-shaped flying craft showing the interior construction.

FIG. 5 is an enlarged fragmentary horizontal sectional view showing the inside construction of the bottom portion of the disc.

FIG. 6 is a side elevational view of the disc-shaped flying craft parts being shown broken away to show the arrangement and shape of the fuel tanks.

Refering first to FIG. 1, there is shown an experimental disc-shaped flying craft or spacecraft designated generally at **10**. The flying craft is shown supported on a testing stand **200** for test purposes, with the testing stand mounted on a concrete base **210**.

The flying craft **10** comprises generally a central sleeve **300** lying in the center of a disc shaped wing or foil **240** of airfoil cross section that extends outwardly from the central sleeve or internal radially extending ribs **302** providing thereby the outer surface of the foil **240**. Between the ribs there ars six compartments, *c.***1**, *c.***2**, *c.***3**, *c.***4**, *c.***5**, and *c.***6** for housing bulk liquid fuel and oxygen gas tanks.

The disc shaped wing **240** is conical at its bottom surface and convex at its top surface.

The central sleeve **300** receives a launching pole **202** on which the flying craft spins to assist its takeoff. This launching pole is embedded in the testing stand **200**. The disc-shaped wing **240** rests on a pair of superposed round plates **216**, **216**, the plates being separated by an oil pressure film. This permits the top plate **216** which contacts the disc-shaped wing to rotate freely without any friction as well as permits the disc-shaped wing to rotate without friction, when it rotates. The bottom plate **216** remains stationary and is supported on the top of a plurality of compressed air pistons and cylinders **151**, constituting a compression system. This compression system also acts or functions as a weighing scale for the disc-shaped wing.

Suspended from the conical underside of the circular fail **240** at diametrically opposite sides thereof, to effect the spinning of the flying craft on the launching pole **202** and in flight, are horizontally extending liquid fuel and oxygen supplied jet rocket motors **150** and **152**, and vertically extending jet rocket motors **147** and **148**, that lie parallel to each other equally radially spaced from the center of the craft and which extend tangentially to effect a spinning force about the center of the flying craft to create a gyroscopic effect so as to keep the craft in balance.

These jet rocket motors **147** and **148** and **150** and **152** are supplied with liquid fuel and oxygen from any of the fuel and oxygen tanks in the compartments.

After the flying craft has built up rotational speed on the launching pole **202** and at the end of the final testing operation, the diametrically opposite vertical thrustjet rocket motors **147** and **148** are opened up and will immediately carry the flying craft into the air. The fuel and oxygen supply to these vertical motors can be derived from any of the fuel and oxygen tanks in the compartment through any of the piping and by the operation of selected valves forming a part of the system. Such valves and controls therefore may be of any desired conventional type, such for example, as described in U.S. Pat. 2,939,648.

The guidance control equipment may then be operated to turn off the horizontal motors **150** and **152** and the upward thrust of the flying craft can be maintained in its upward flight by the vertical thrust rocket motors **147** and **148**. The vertical and horizontal rocket motors **147** and **148** and **150** and **152** respectively, thus can be started and stopped as desired by the control equipment.

The flying craft can be steered and navigated from the starting and stopping of one or both of the vertical motors to tilt the disc shaped wing as desired from the ground.

The craft will have a large supply of fuel and will be permitted to maneuver freely under instrument control according to the pattern of the guidance control equipment and from the instruments upon the ground. With all of the rocket motors turned off, the craft can drift toward the ground and be returned to land again, by the spinning motors **150** and **152**.

A dial **208** is provided on the testing stand to indicate the weight of the flying craft. A tachometer **217** is also provided on the testing stand for checking the rotational arm.

In accordance with the invention, a plurality of spaced tubular arms **238** radiate outwardly from the sleeve **300** along the bottom of the disc shaped wing **240**. Each arm **238** is provided with a charge or supply of mercury **239** adapted to be moved from the inner ends of the arms to the outer ends thereof. The mercury is supplied through the ends of the arms which are stopped by removable plugs **248**. Each tubular arm has an equal quantity of mercury. These mercury charges under centrifugal pull will slide along the arms **238** at an upward angle to the outer edge of the disc shaped wing thereby adding mass and weight to the deflected centrifugal pull and thus increase the power of the pull.

The invention contemplates a turbo pump feed system and a centrifugal feed system. For this purpose, an oxidizer pump **244** provided in each compartment, a turbine **243** and a gas generator combustion chamber **242** with two valves.

In FIGS. 3 and 5, the interior of compartment *c*.**1** is shown having a total of seven gas tanks. The other compartment *c*.**1** to *c*.**5** inclusive are similarly constructed and equipped with tanks. There is a gas tank **143** in each compartment. In the flying craft **10** there are six tanks **143**, three being oxidizer tanks and three being fuel tanks; there are twenty-four tanks **145**, twelve being oxidizer tanks and twelve being fuel tanks; and there are twelve high pressure tanks **241**.

Tank **143** best shown in FIG. 5 is a fuel tank in compartments *c*.**1**, *c*.**3** and *c*.**5**, and is an oxidizer tank in compartments *c*.**2**, *c*.**4** and *c*.**6**.

With particular reference to FIG. 5, in compartment *c*.**1** two high pressure tanks **241** are provided. Also means for transferring a propellent and an oxidizer to rocket motor fuel tanks **143** and oxidizer tanks **145** is shown displaced by high pressure gas which is fed into the tanks under regulated pressure by means of a regulator **245** and starting valve **246**.

The tanks **143** being closer to the center of the disc shaped wing **240** than to the motors, the fuel undergoes a centrifugal pull and an additional feed combined with the gas pressure feed system.

The tanks **143** are also under gas pressure feed. Aided by the centrifugal pull, the fuel is forced directly to the pumps and motors which are located closer to the center of the disc shaped wing. It is evident that the flying craft has an ample gas pressure feed system.

Tanks **145** best shown in FIG. 5 are four in number in each compartment; and in compartments *c*.**2**, *c*.**4**, and *c*.**6** they are fuel tanks; and in compartments *c*·**1**, *c*·**3** and *c*.**5** they are oxidizer tanks.

Still referring to FIG. 5, a circular fuel-feed line **249** passes in a circle through all six compartments. Line **249** is connected to and carries fuel from tanks **143** in compartments *c*.**1**, *c*.**3**, and *c*.**5** and not shown and slightly located below line **249** is a double circular oxidizer feed line **250**. Line **250** is similar to line **249** except that it will be connected to oxidizer tanks **143** in compartments *c*.**2**, *c*.**4** and *c*.**6** (see FIG. 4).

Still referring to FIG. 5, it will be seen that farther out on the periphery of the disc shaped wing **240**, tanks **145** also have double circular feed lines **251** and **252**. Oxidizer line **251** is connected to oxidizer tanks **145** in compartments *c*.**1**, *c*.**3** and *c*.**5**, and fuel feed line **252** is connected to carry fuel from fuel tanks **145** located in compartments *c*.**2**, *c*.**4** and *c*.**6**. This manner of loading and filling the tanks keeps the disc in balance.

It will be understood that to fill the tanks if desired, an oxidizer could be positioned only in one compartment and a fuel tank only in the next adjacent compartment. If desired the number of tanks could be changed and the number of compartments changed.

The vertical oriented rocket motors **147** and **148** are larger and much more powerful than the horizontal spinning rockets **150** and **152** because the thrust required to spin the disc will be relatively small. Therefore two small rocket motors will spin a large size disc at any required angle and speed.

With further reference to FIG. 5, a centrifugal switch **225** is shown and the action and purpose of this switch are comparable to a safety valve on a boiler. This switch will keep the disc spinning with a certain constant speed range by turning motors **150** and **152** on and off. When the disc shaped body reaches a predetermined fast speed or r.p.m. the switch will automatically shut off the motors; and the motors will be reactivated again when the disc-shaped body **240** slows down to a determined number of r.p.m.

Batteries **253** are used in energizing the centrifugal switch **225** and in operating the solenoid valves. Plugs **254** are used in filling the fuel and oxidizer tanks.

What is claimed is:

1. A flying craft comprising a central body and a rotatable circular disc like airfoil shaped wing journalled on the central body, horizontally extending rocket motors respectively carried by the respective opposite sides of the circular foil and extending sub-tangentially thereto and serving to spin the circular wing upon the central body to provide gyroscopic action upon the flying craft, vertically extending rocket motors respectively disposed on respective opposite sides of the circular wing to discharge gases downwardly to provide the lift for the flying craft upon the gyroscopic section having been effected, means for supplying combustion fuel and gas to said rocket motors, and means for adding mass and weight to the centrifugal pull of the craft thereby increasing the power of the centrifugal pull, the means for adding mass and weight including tubular arms radiating from the central body at an angle to the horizontal, and a charge of mercury in each of said tubular arms, said charge of mercury adapted to move from the inner end of the tubular arm to the outer end thereof under centrifugal pull at an upward angle.

2. A flying craft as defined in claim **1** wherein the circular disc like airfoil shaped wing is conical on the bottom surface thereof.

3. A flying craft as defined in claim **1** wherein the circular disc like airfoil shaped wing is convey shaped on the top thereof.

4. A flying craft as defined in claim **1** wherein the circular disc like airfoil shaped wing is conical on the bottom thereof and convex shaped on the top thereof.

5. A flying craft as defined in claim **1** wherein the wing is divided into spaced compartments and wherein the means for supplying combustion fuel and gas to the rocket motors includes six inner tanks, consisting of three oxidizer tanks and three fuel tanks; and twenty-four outer tanks consisting of twelve oxidizer tanks and twelve fuel

tanks, piping connections between the tanks and rocket motors and control valves in the piping, said inner tanks being disposed inwardly of the rocket motors whereby the fuel is subjected to a centrifugal pull.

6. A flying craft as defined in claim 5 wherein said tanks provided with inlets and outlets at the ends thereof.

7. A flying craft as defined in claim 1 wherein the horizontal rocket motors are disposed in a line with each other, the vertically disposed rocket motors are disposed in a line with each other, said latter line intersecting said first named line, said rocket motors being equally spaced from the center of the wing.

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U.S. Cl. X.R.

244—93