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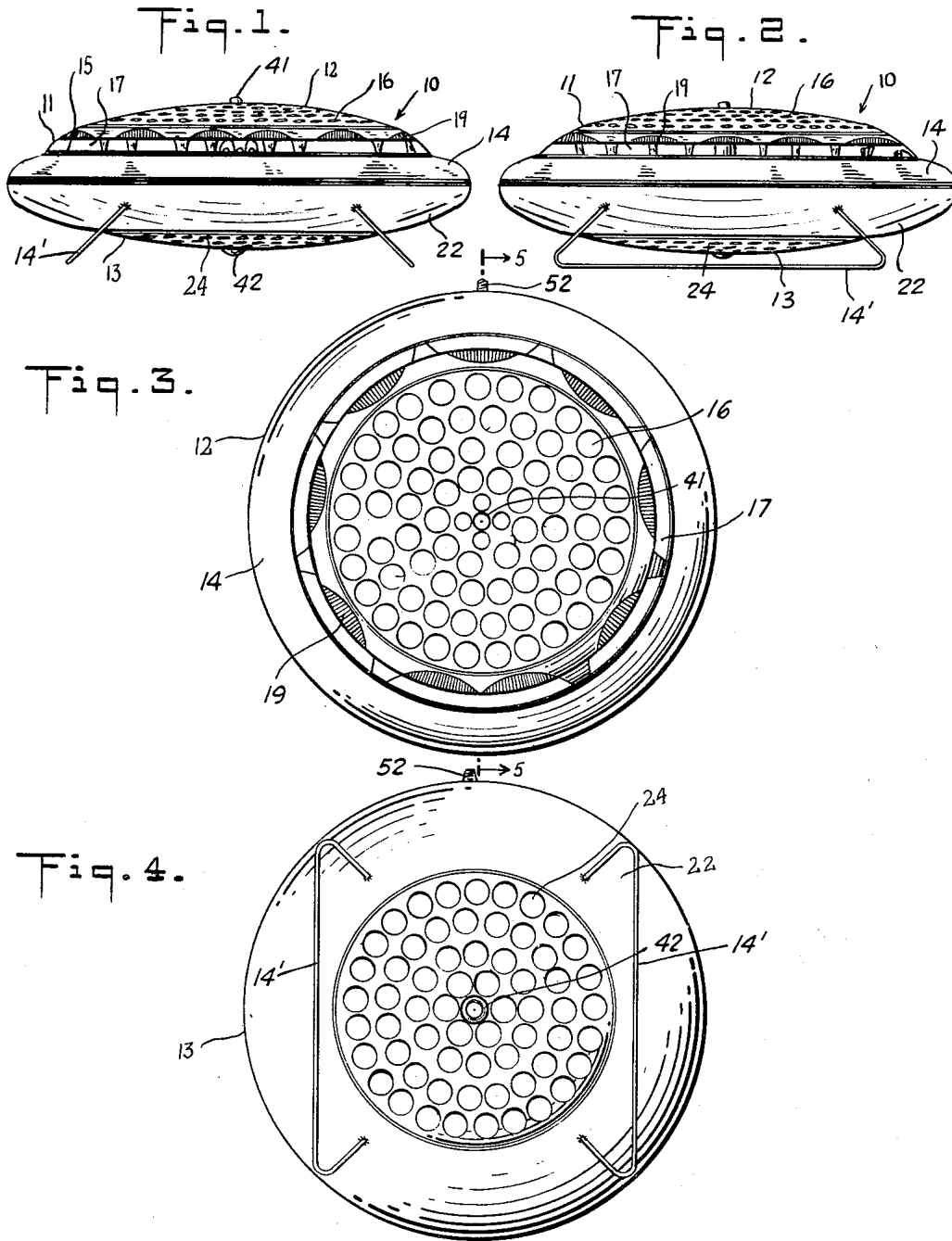
S. APOSTOLESKU

2,938,298

TOY HELICOPTER OF SAUCER TYPE

Filed Nov. 12, 1957

3 Sheets-Sheet 1



INVENTOR.  
STEFAN APOSTOLESKU.  
BY  
*Edw. S. Higgins*  
ATTORNEY

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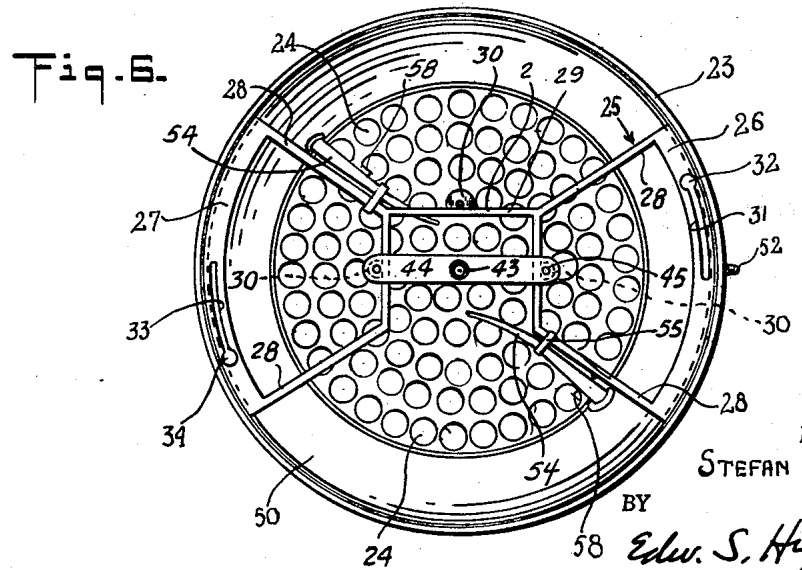
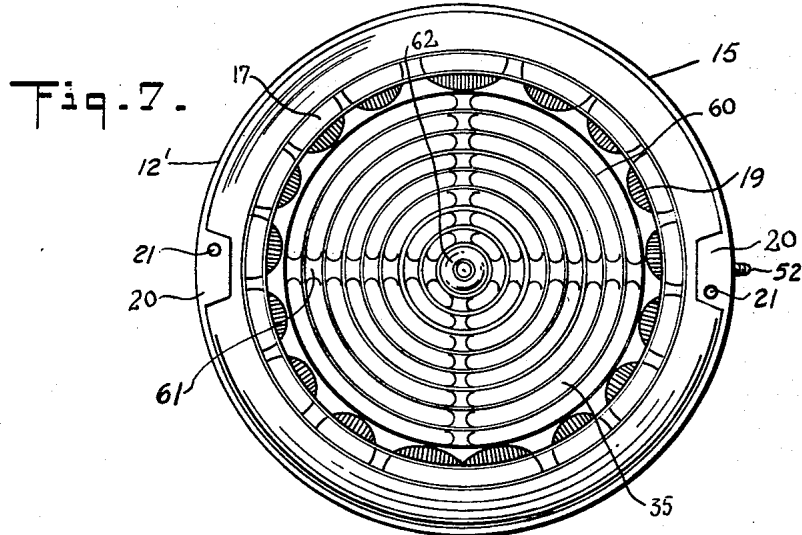
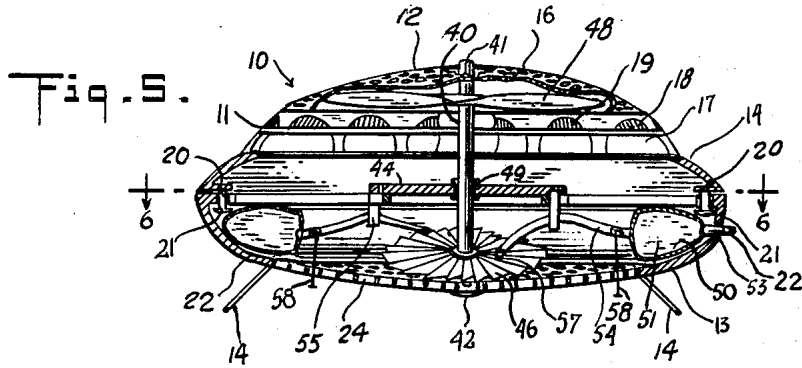
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STEFAN APOSTOLESKU

BY  
*Edw. S. Higgins*  
ATTORNEY

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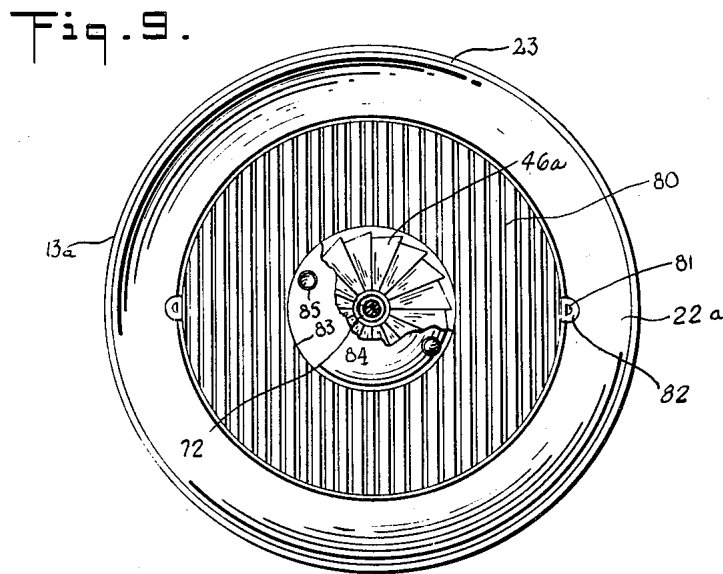
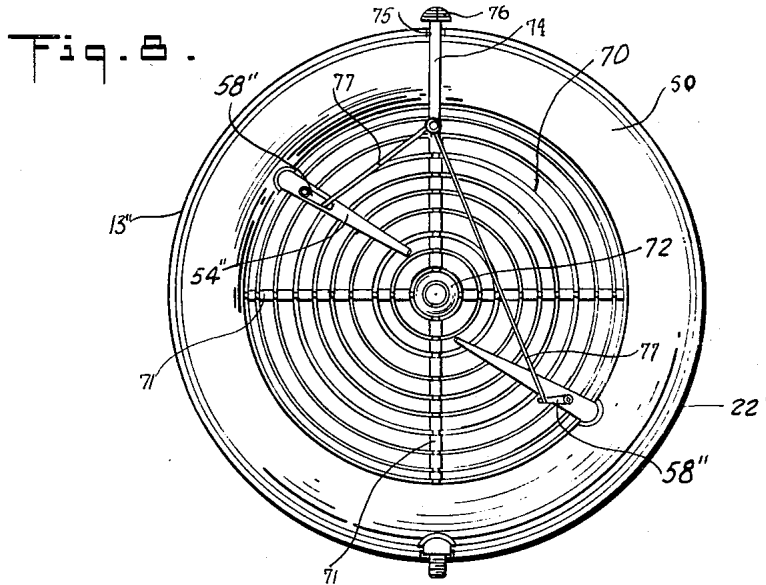
S. APOSTOLESKU

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INVENTOR.  
STEFAN APOSTOLESKU  
BY  
*Edw. S. Higgins*  
ATTORNEY

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2,938,298

**TOY HELICOPTER OF SAUCER TYPE**

Stefan Apostolescu, 415 W. 35th St., New York, N.Y.

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1 Claim. (Cl. 46-75)

This invention relates to amusement devices for children and more particularly to a toy helicopter of the saucer type.

A primary object of the present invention is to provide a toy helicopter that simulates a flying saucer in shape.

Another object of the invention is to provide a toy helicopter of the saucer type that is operated by air pressure.

A further object of the invention is to provide a toy helicopter of the saucer type that may be operated either by an electric motor or by air pressure, or by a gas engine or by a spring motor.

It is also proposed to provide a toy helicopter of the saucer type with a fuselage body formed of sections readily attached and detached.

Yet another object of the invention is to provide a toy helicopter of the saucer type with a propeller at one end and a turbine wheel at the other end.

An important object of the invention is to provide a toy helicopter of the saucer type that is simple and rugged in construction, pleasing in appearance and economical to manufacture.

For further comprehension of the invention and of the objects and advantages thereof reference will be had to the accompanying drawings forming a material part of this disclosure and wherein—

Fig. 1 is a front elevational view of a toy helicopter of the saucer type embodying one form of my invention.

Fig. 2 is a side view thereof.

Fig. 3 is a top plan view thereof.

Fig. 4 is a bottom plan view thereof.

Fig. 5 is a sectional view taken on the plane of the line 5-5 of Fig. 3.

Fig. 6 is an enlarged horizontal sectional view taken on the plane of the line 6-6 of Fig. 5.

Fig. 7 is an enlarged plan view of a modified top section of a fuselage body shown upside down.

Fig. 8 is a view similar to Fig. 6 showing a modified form of bottom section of the fuselage body, parts being omitted.

Fig. 9 is a view similar to Fig. 6 showing a further modified form of bottom section of the fuselage body, parts being omitted.

Referring to the drawings in detail, in Figs. 1 to 6, inclusive, a toy helicopter of the saucer type embodying the first form of my invention is designated generally at 10. This toy helicopter comprises a hollow bulbous fuselage body indicated at 11 and consisting of two sections, an upper section 12 and a lower section 13. The fuselage body is circular in plan or saucer-shaped and is preferably formed of aluminum, plastic material or any other suitable material.

The upper section 12 of the fuselage is dome-shaped or inverted saucer-shaped, with an arcuate-shaped wall 14 terminating at its bottom end in a flat peripheral edge 15. Wall 14 is formed with a plurality of spaced air vents 16, in the top thereof and with a plurality of

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windows 17 circumferentially around its bottom end. Intermediate the air vents and windows, the wall 14 is formed with circumferentially disposed openings 18 provided with vanes 19. At opposite sides, the peripheral edge 16 is enlarged forming inwardly extending lugs 20, 20. Headed pins 21 are secured at one end to the lugs and depend downwardly therefrom as seen in Fig. 5.

The lower section 13 is inverted dome-shaped or saucer-shaped with an arcuate-shaped wall 22 terminating at its top end in a flat peripheral edge 23. Wall 22 is formed with a plurality of air vents 24 in the bottom thereof. A pair of hinged legs 14' depend from section 13.

A supporting frame indicated generally at 25 is formed on the lower section 13 and extends across its upper end. This frame consists of arcuate-shaped segmental flanges 26 and 27 extending along opposed sides of the peripheral edge 23. At the ends of the flanges, arms 28 extend radially toward the center of the section and terminate in a three-sided subframe 29. The subframe is disposed centrally of the section and each side thereof is formed with a perforated ear 30. One of the flanges, for example flange 26, is formed adjacent one end with an elongated slot 31 terminating at one end in an enlarged circular hole 32 at its top end as viewed in Fig. 6. The other flange 27 is similarly provided, at its end opposite to the end of flange 26 containing slot 31, with a similar slot 33 and terminal hole 34, at its bottom end as viewed in Fig. 4. The upper and lower sections of the fuselage body are assembled by superimposing the upper section 12 on the lower section 13 and passing the heads of the pins 21 through the holes 32 and 34 in the slots 31 and 33, respectively, and then partially turning the sections relatively so as to slide the shank portions of the pins 21 through and along the slots to bring the heads of the pins underneath the flanges 26 and 27.

A shaft 40 is carried by the upper section 12 and depends downwardly therefrom through the center of the fuselage body. Shaft 40 is journalled at its top end in a bearing 41 secured to the center of the wall 14. The bottom end of the shaft is journalled in a bearing 42 secured to the wall 22 of section 13 at its center. Shaft 40 passes through an opening 43 in a removable flat bar 44 spanning the space between the opposed sides of the subframe 29 and is secured in place by bolts 45 extending through openings in the ends of said bar and through aligned perforations in the opposed ears 30. The bar 44 steadies the shaft through bushing 49. When the bar 44 is removed, an electric motor or gas engine may be placed on the subframe 29 and secured to the perforated ears 30, the propeller blade being mounted on the engine shaft. A propeller blade 48 is fastened to the shaft 40 at its upper end inside and adjacent to the vented portion of wall 14. A vaned turbine wheel 46 is mounted on the bottom end of the shaft 40 inside of and adjacent to the wall 22 of the bottom section 13.

An annular or endless bag or container 50 is supported on the bottom section 13 adjacent its periphery on the inside thereof. The bag may be made of rubber, plastic or other suitable material for holding a supply of compressed air 51. The bag is provided with a valved inlet pipe 52 extending through an opening 53 in the outer periphery thereof. At opposite sides of its inner periphery, the bag is also provided with flexible outlet pipes or hoses 54 extending toward the center of the fuselage body and being supported intermediate their ends by brackets 55 mounted on the radial arms 28 of the frame 25. The inner free ends of the hoses are disposed adjacent to and over the turbine wheel 46 and are provided with nozzles 57 for directing air radially against the vanes of the turbine wheel for turning the wheel. The

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passage of air through the outlet hoses is controlled by hand operated valves 58 extending through holes 24 in section 13.

In using the toy helicopter of the saucer type, the bag 50 is filled with compressed air through the inlet 52 by means of any suitable kind of air pump. The valves 58 are manually opened and the air is directed with force by the nozzles 57 of the outlet hoses 54 against the vanes of the turbine wheel 46 thereby turning the shaft 40 and the propeller or rotor 48 at the top. The propeller 48 is fixed at a pitch or angle so as to lift the saucer-shaped helicopted upwardly to simulate a genuine helicopter.

In Fig. 7, a modified form of upper section 12' of fuselage body for use with a lower section such as the section 13 is illustrated. This view shows the upper section when viewed from the inside. The section 12' differs from section 12 of the form of Figs. 1 to 6, inclusive, in that the perforated wall portion of the section 12 is replaced by spaced concentrically arranged rings 60 supported by radial arms 61 extending across the section. At their inner ends, the arms 61 terminate in solid disc-shaped center plate 62 which supports the depending shaft 40 (not shown).

In all other respects, the form of upper section shown in Fig. 7 is similar to the section 12 of Figs. 1 to 6, inclusive, and similar reference numerals are used to indicate similar parts.

Fig. 8 illustrates a modified form of lower section 13'' of fuselage body for use with an upper fuselage body section such as the section 12 of the form of Figs. 1 to 6, inclusive. This lower section 13'' differs from section 13 of the form of Figs. 1 to 6, inclusive, in that the vented section of the wall 22 is replaced by a section comprising rings 70 disposed in concentric arrangement and supported by radial arms 71 extending across the section and terminating in a solid disc-shaped central plate 72 for supporting the bearing for the bottom end of the shaft 40 (not shown).

In this form, mechanism is provided for actuating the valves 58'' controlling the passage of air through the hoses 54'' in unison. This mechanism includes a lever 74 slidable through an opening 75 in the periphery of the wall 22'' of the section. A knob or finger piece 76 is formed on the outer end of the lever and pivotally connected at one end to the inner end of the lever is a pair of rods or links 77, 77, the other end of the rods or links being pivotally connected to the valves 58''. Movement of the lever 74 in one direction opens the valves and movement in the opposite direction closes the same as will be understood.

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Referring now to the modified form of bottom section 13a of fuselage body shown in Fig. 9, in this form the bottom wall 22a is closed at its center by a grille plate 80 secured to the inner periphery of the wall 22a by bolts 81 extending through perforated ears 82 on opposite sides of the plate. The plate 80 is formed with a central opening 83 to accommodate the turbine wheel 46a on the end of shaft 40a. The opening is closed by a closure plate 84 which is provided with opposed openings 85 to permit passage of the outlet hoses to the turbine wheel.

In all other respects, the bottom section 13a is similar to the bottom section 13 of the form of Figs. 1 to 6, inclusive.

While I have illustrated and described the preferred embodiments of my invention, it will be understood that changes in details of construction might be made without departing from the principle of the invention and I desire to be limited only by the state of the prior art and the appended claim.

I claim:

A toy helicopter of the saucer type having a bulbous body, circular-shaped in plan, with a vertically disposed rotatable shaft extending through the center of the body, a propeller blade fixed on one end of the shaft, a turbine wheel fixed on the other end of the shaft, an annular flexible bag in said body on the bottom thereof containing compressed air, said bag having an inlet for supplying air thereto, flexible hoses leading from the bag to the turbine wheel for turning the same, valves for controlling the passage of air through said hoses, and means for actuating said valves including link members pivotally connected at one end to said valves, the other end of the link members being pivotally connected to a slidable lever extending through and outwardly of the fuselage body.

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