May 24, 1960 G. E. BERGER 2,937,870

REMOTE CONTROL TOY AIRPLANE

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Fig. 1.

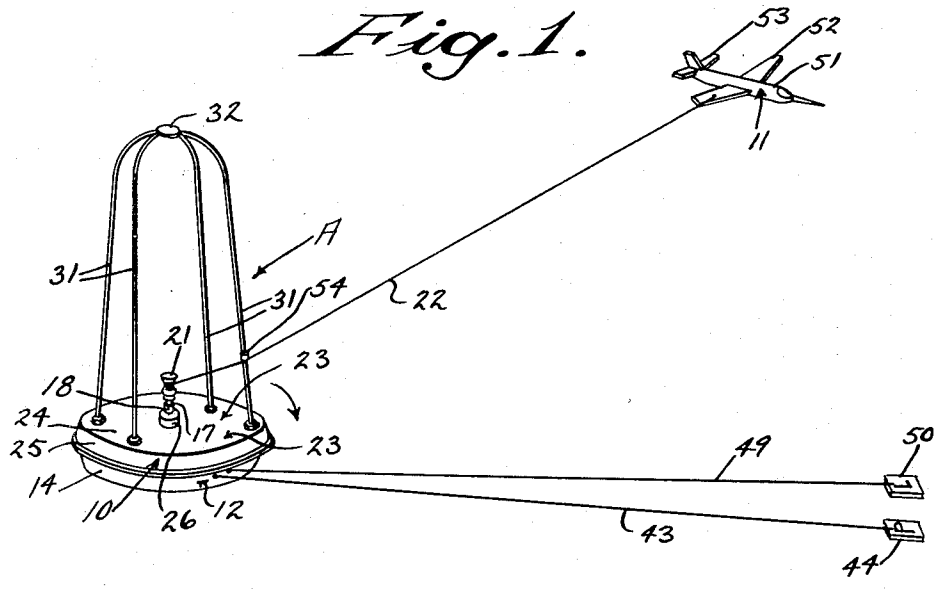


Fig. 2.

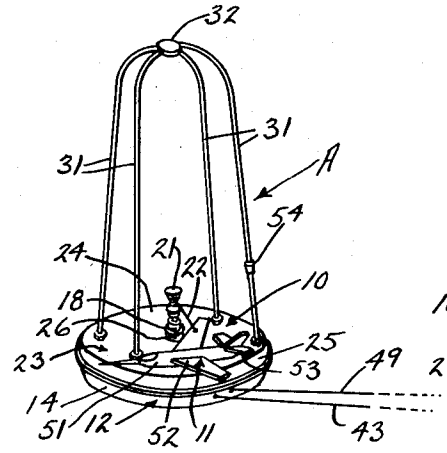
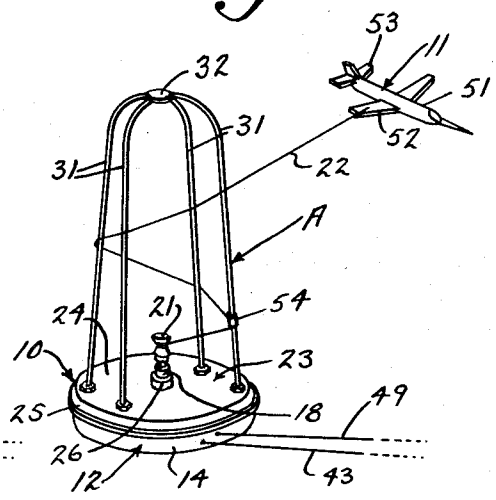


Fig. 3.



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Fig. 4.

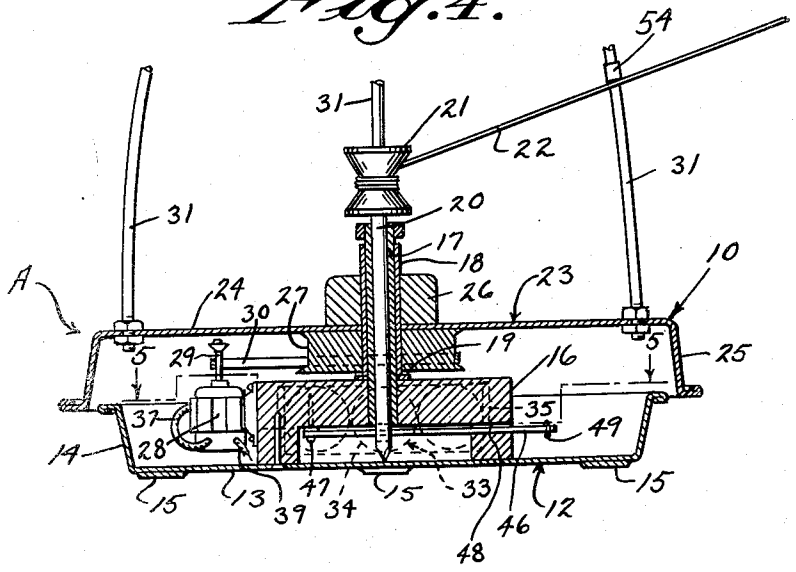
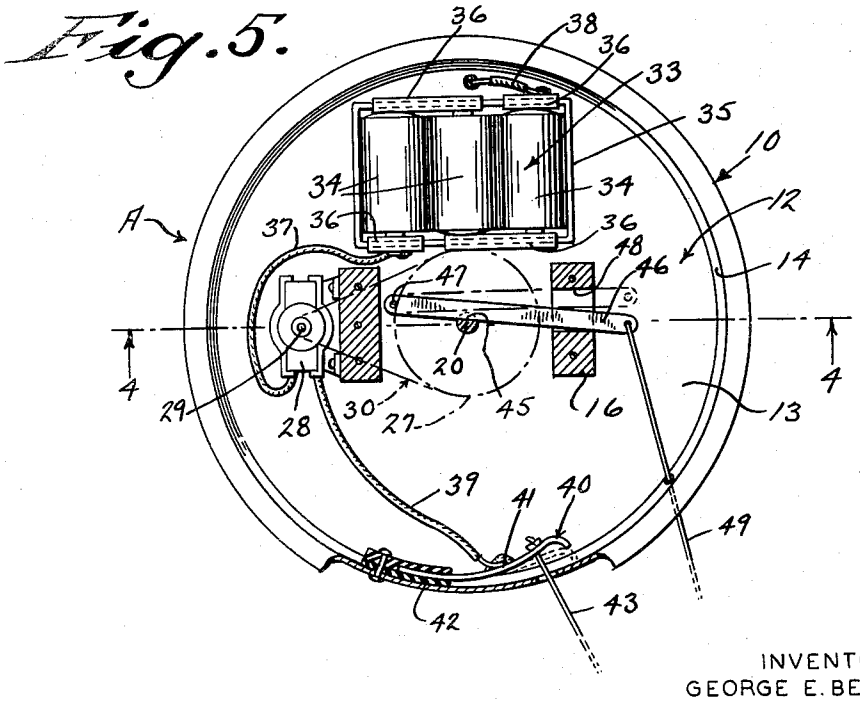


Fig. 5.



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REMOTE CONTROL TOY AIRPLANE

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2 Claims. (Cl. 272—31)

This invention appertains to toys and amusement devices and more particularly to a novel toy airport and airplane.

One of the primary objects of my invention is to provide an amusement device embodying a remote operating means for controlling the taking off, flying and landing of a toy airplane relative to a simulated airport, which will be interesting and instructive to the operator and observers.

Another salient object of my invention is to provide an amusement device embodying a simulated airport including a pylon and a captive toy airplane connected with the airport by a flexible cord adapted to be wound on and payed off of a rotatable spool carried by the airport, the pylon being driven, so as to engage the cord to bring about the manipulation of the airplane.

Another salient object of my invention is the provision of two manual controls for the airport and airplane, one of said controls being operable for bringing about the operation of the motor employed for rotating the pylon and the other control being operable for stopping and releasing the spool, the construction being such that proper manipulation of the controls will bring about desired take offs, the flying and landing of the airplane.

A further object of my invention is to provide a novel rotatable pylon forming a part of the airport and embodying spaced upright rods between which the cord for the airplane extends, the rods functioning to engage the cord to swing the airplane out during rotation of the pylon and the winding up of the cord thereon for bringing the airplane into the airport when rotation of the pylon is stopped.

A still further object of my invention is to provide an amusement device of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed, and illustrated in the accompanying drawings, in which drawings,

Figure 1 is a perspective view showing my improved amusement device with the airplane in flight;

Figure 2 is a view similar to Figure 1, but showing the airplane landed on the airport itself;

Figure 3 is a view similar to Figures 1 and 2 and showing the plane in flight but with the cord partially wound about the pylon;

Figure 4 is an enlarged fragmentary vertical sectional view through the lower end of the airport, the view being taken on the line 4—4 of Figure 5, looking in the direction of the arrows, the view illustrating the means employed for rotating the pylon and the relation of the spool for the cord relative to the pylon, and

Figure 5 is a horizontal sectional view taken on the line 5—5 of Figure 4, looking in the direction of the

arrows, the view illustrating the control for the drive motor for the pylon, and the brake or control lever for the spool.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates my novel toy or amusement device and the same includes an airport **10** and a captive toy airplane **11**.

The term "airport" has been used in view of the fact that the airplane lands, takes off and flies relative to the member **10**. This airport **10** includes a base **12** which is adapted to be placed on a floor or other surface. This base **12** is formed to provide in conjunction with other parts, as will later appear, a housing for certain operating parts of the device. Thus, the base **12** can be in the nature of a pan and the same includes a base plate or bottom wall **13** and an upstanding marginal wall **14**.

The bottom wall **13** can be provided with feet **15**, if such should be desired. Rigidly secured to the upper face of the bottom wall **12** is a U-shaped supporting bracket or bearing block **16** and fastened to the center of the block or bracket is a bearing sleeve **17**. Rotatably mounted on the bearing sleeve **17** is a hub sleeve **18** and it is to be noted that the lower end of the hub sleeve is provided with a thrust flange **19** which engages the upper surface of the bearing block or bracket **16**. Both the bearing sleeve **17** and the hub sleeve **18** are mounted axially relative to the base and the bearing sleeve **17** rotatably supports a shaft **20** to which is rigidly secured a spool **21** for a cord **22**, which is attached to the airplane **11**. The lower end of the spool shaft **20** terminates in a lower bearing point.

Mounted on top of the base **12** is a rotatable platform **23** and this platform is of an inverted pan shape and has a greater diameter than the diameter of the base **12**. Thus the platform **23** includes a top disc shaped wall **24** and a depending marginal wall **25**. The platform **23** cooperates with the base **12** to form a housing for certain operating parts and the bearing bracket or block **16**. The hub sleeve **18** and the platform **23** constitute a part of a pylon and this pylon is freely rotatable about the bearing sleeve **17**. The platform **23** also includes a hub plate **26** which is rigidly secured to the hub sleeve **18** and to the upper face of the top wall **24** of the platform **23**. Also secured to the hub sleeve **18** and rigidly fastened to the lower face of the wall **24** is a pulley **27**. Thus, the platform, the hub sleeve **18**, the hub plate **26** and the pulley **27** rotate as a unit. A small electric motor **28** is firmly carried by one end of the bearing block or bracket **16** and the armature shaft **29** extends upwardly at one side of the pulley **27** and is operatively connected to the pulley for rotating the same, by means of a pulley belt **30**.

The pylon also includes a plurality of upwardly extending rods **31** and these rods form an important feature of the invention. The lower ends of the rods are rigidly fastened to the top wall **24** of the platform **23** adjacent to the outer edge thereof and these rods extend upwardly a considerable distance above the platform and their upper ends gradually curve inwardly toward the axial center of the platform. The upper ends of the rods **31** are all rigidly connected in any preferred way, such as by the use of a top plate **32**.

The motor **28** preferably receives its current from a battery **33** formed from a series of dry cells **34** and these cells **34** are connected in series and are received within a case **35** rigidly carried by the base **12**. The cells **34** are properly connected together by means of contacts **36** carried by the case **35**. Thus one terminal of the motor is connected by a wire **37** to one terminal of the battery and the other terminal of the battery is

grounded to the base by a ground wire 38. The other terminal of the motor 28 has electrically connected therewith a wire 39 which leads to a control switch 40 and this switch also forms an important feature of the invention. The switch 40 includes a resilient switch lever 41 one end of which is secured by means of insulating blocks 42 with the base 12 and the spring lever is so tensioned that the same is normally held away from the base 12, it being understood that the base 12 is formed from electric conducting material. The outer end of the spring switch lever 41 has secured thereto a pull cord 43 and the pull cord is of a considerable length so that the outer end thereof will be situated a point distant from the base. The outer end of the pull cord 43 has firmly fastened thereto a manipulating finger piece 44 which can bear suitable operating indicia, such as the letter P—meaning power control.

The rotatable spool shaft 20 has formed thereon a flat stop face 45 and I provide a brake or stop lever 46 for cooperation with this face to bring about the holding of the shaft 20 and its spool 21 against rotation, at certain times, which will later appear. The inner end of the brake lever 46 is pivoted, as at 47, to the bracket 16 at one side of the shaft 20. The opposite end of the lever extends beyond the shaft and is mounted in a guide slot 48 formed in one end of the bracket 16. The outer end of the brake lever 46, has secured thereto a pull cord 49 and the outer end of this pull cord extends at a point distant from the base and has secured thereto a manipulating finger piece 50. This finger piece can also bear operating indicia, such as the letter L, meaning landing. At the present moment, it is to be noted that when the cord 43 is pulled a circuit is closed through the motor for rotating the pylon and when the string 49 is pulled, the lever 46 engages the flat face of the shaft 20 and holds this shaft against rotation. When the cord 49 is released, rotation of the shaft will merely kick the lever 46 outwardly.

The plane 11 is of a light construction now commonly found in toy planes on the market and can be formed from balsa wood. As illustrated, the same includes a fuselage 51, wings 52 and a tail assembly 53. The plane can be provided with landing wheels, if such should be preferred.

It is to be also noted, at this time, that one rod 31 of the pylon has formed thereon or secured thereto a stop knob 54 and that this stop knob is located adjacent to but spaced from the platform 23. The purpose of this knob will now appear.

In operation of the amusement device, and considering that the cord 22 is wound upon the spool 21 and that the plane is resting on the platform 23, with the terminal thereof just in advance of the rod 31 carrying the stop knob 54 and it is desired to fly the plane—to have the plane take off from the platform the brake lever 46 is released and a pull is exerted on the cord 43 to bring the switch lever 40 in electrical contact with the base 12. The circuit will be closed through the motor and the pylon will start to revolve and the plane 11 will be thrown by centrifugal force outwardly and the cord will engage the rod 31 and its upward travel will be stopped by the knob 54. This rod will carry the cord 22 therewith and as the spool 21 is freely rotatable, the cord can be easily pulled off of the spool and the plane will be moved outwardly and the same will effectively take off and fly out to the length of the cord.

To land the plane on the airport or platform, the cord 49 is pulled so as to bring the brake lever 46 into engagement with the shaft 20 so that rotation of the shaft and its spool 21 will be stopped. While the plane is flying around the pylon, it winds the cord onto the spool thus causing the plane to be drawn nearer to the port and when the plane itself touches the top of the platform 23 pull on the cord 43 is released and this breaks the circuit through the motor 28 and shuts off the power and the plane will drop gently on the platform.

To land the plane on the floor away from the port, the flying speed of the plane is reduced by starting and stopping the motor 28 and when the plane comes into a downward glide, power is completely shut off. If it is desired to have the plane land relatively close to the platform, the brake levers can be operated until a desired length of the cord 22 is wound on the spool.

In order to have the plane take off from the floor alongside of the airport, the circuit is opened and closed to the motor and this will slowly wind the cord 22 around the pylon (see Figure 3). When the plane is near the pylon the circuit to the motor is left closed and the plane will be swung up and outwardly.

With practice, the operator can so manipulate the two controls to cause the plane to fly outwardly away from the pylon or to be drawn inwardly toward the pylon and to perform dives, etc. This can be accomplished by having the motor run full speed which will cause the cord to slightly wrap upward around the pylon and this will lift the plane up and in toward the pylon. When the motor is momentarily shut off, the plane will then fly outward in a greater circle unwrapping the cord from the pylon and the plane will tend to climb slightly and then to dive. At this time, by closing the circuit to the motor, and as the momentum of the plane increases, the same will pull out of its dive and tend to climb upward. The plane can be maintained at various altitudes by starting and stopping the motor.

It is to be also understood at this point, that the motor can be operated from a house circuit and in which instance a control would be provided for regulating the speed of the motor. This is advantageous, as by controlling the speed of the motor the plane can be more readily handled to perform various acrobatics; also a solenoid control may be used to engage the brake lever and both motor and braking spool can be controlled from a remote control section away from the airport.

Various other changes in details may be made without departing from the spirit or the scope of this invention, but what I claim as new is:

1. In an amusement device, the combination of a toy airplane and a control cord attached thereto and means for controlling the flight of the plane including a simulated airport having a non-rotatable base, a rotatable platform on the base constituting a landing field for the airplane, means under the control of the operator for rotating the platform, a freely rotatable spool carried by the base and disposed above the platform and having an axial shaft rotatable therewith, said cord being secured to the spool and adapted to be wound on and paid off the spool, upstanding spaced rods carried by the platform and rotatable therewith, the cord being disposed between a pair of the rods, so that upon rotation of the platform a rod will engage the cord, a brake lever disposed at one side of the shaft, manually operable means for moving the brake lever into engagement with the shaft for holding the shaft and the spool against rotation whereby the cord will wind upon the spool to bring the plane inward during flying of the plane around the airport.

2. In an amusement device, the combination of a toy airplane and a control cord attached thereto and a control mechanism for the airplane including a simulated airport having a non-rotatable base, said base including a bottom wall and an upwardly extending marginal wall, a bearing bracket secured to the base, a bearing sleeve rigidly secured to the bracket and extending upwardly therefrom, a rotatable platform including a top wall and a depending marginal wall extending down toward the marginal wall of the base and forming in conjunction therewith a housing, said platform also having a hub sleeve rotatably mounted on the bearing sleeve and a pulley secured to the hub sleeve, an axially disposed shaft

carried by the bearing sleeve, a spool secured to the shaft having the control cord attached thereto with the cord adapted to be wound on and paid off of the spool, said spool and shaft being freely rotatable relative to the platform and base, an electric motor carried by the bracket and a drive belt operatively connected to the motor and to the pulley, a switch for controlling the opening and closing of a circuit to the motor, a pull cord for operating the switch, a plurality of upwardly extending rods secured to the platform, the control cord being disposed between certain of the rods and adapted to be engaged by a rod upon rotation of the platform, and

means for holding the shaft and spool against rotation so that the control cord will wind on the spool when the plane is in flight including a brake lever movable into braking contact with the shaft, and a pull cord attached to the brake lever.

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