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CONTROL DEVICE

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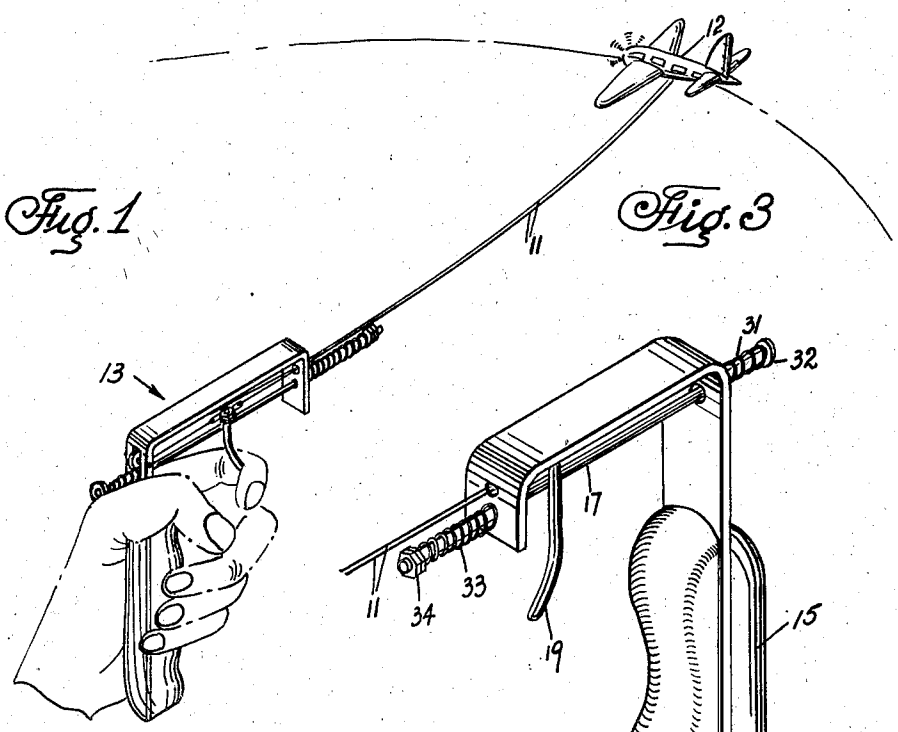
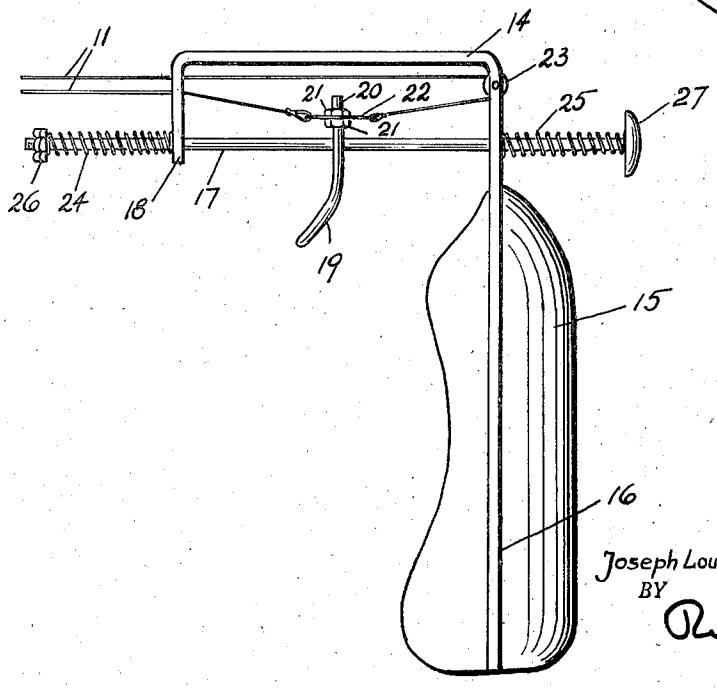


Fig. 1

Fig. 3

Fig. 2



INVENTORS
Joseph Louis De Barbieri and
Edward Kishner
BY
ATTORNEYS

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CONTROL DEVICE

Joseph Louis De Barbieri and Edward Kishner,
Brooklyn, N. Y.

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4 Claims. (Cl. 74—502)

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This invention relates to control devices and more particularly to a control handle for guiding the flight of model airplanes of the motor-driven type.

In many instances it is desirable to control the flight of motor-driven model airplanes, and means for accomplishing this is to pre-set the rudder and cause the plane to maintain a circular path. Still additional control may be had by providing means for operating the elevators so that the plane may be looped, or the elevation altered at the will of the operator. To accomplish this, a lever arm adapted to operate the elevators, is installed in the plane. Two control cords of sufficient length to allow flight at the desired elevation are then attached to the lever arm so that the plane will ascend or descend in accordance with the particular cord that is pulled. The control handle for operating the cords preferably consists of a bar or stick from four to six inches long with the cords attached to each end. The operator then stands at the center of the proposed circle of flight and by rotating the stick about an axis perpendicular thereto can control the height of the plane during flight. With this form of control the two cords leading from the plane to the operator must not become twisted because the added friction will prevent the transmission of movement from the stick to the control of the plane would be exceedingly difficult, not only from the standpoint of preventing entanglement of the control cords but also because the operating handle acts as a lever arm about its center and the adjustment is relatively coarse.

One of the objects of this invention is, therefore, to provide a control handle for guiding power-driven model airplanes in flight wherein exceedingly fine adjustment of the elevator control cords may be had.

Another object is to provide a control handle for guiding model airplanes which will enable positive control of the elevators even though the control cords may become twisted.

Still another object of this invention is to overcome the necessity of maintaining a spaced relationship between the two control cords in order to simplify handling of the plane and reduce the wind resistance offered by them.

Other objects will become more apparent from the following description and drawings which illustrate, by way of example only, one form of the invention.

Figure 1 is a perspective view and illustrates

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the manner in which the control handle would be used in guiding a model airplane in flight;

Figure 2 is a side elevation of one form of control handle in accordance with the invention; and

Figure 3 is a perspective view of another form of the control handle.

As previously mentioned, one method of flying model airplanes is to pre-set the rudder to cause the plane to maintain a predetermined circular path as illustrated in Figure 1. Two control cords 11, adapted to operate a suitable lever arrangement (not shown) within the plane 12 and in turn the elevators, are connected to the said lever and are long enough to reach a point on the ground centrally located with respect to the circle of flight. These cords are attached to the control handle 13 so that either one or the other may be actuated and cause the plane to descend, ascend or even loop.

One form of the invention is shown in Figure 2, and consists of an inverted J shaped member 14 having a hand grip 15 on the longer vertical leg 16. A bar 17, is slidably mounted in holes in the two legs 16 and 18 and is essentially parallel to the horizontal section of the J member 14.

Midway between the legs of member 14, and rigidly fastened to the bar 17, is an operating lever or trigger 19 having suitable means on the upper end thereof for the attachment of the control cords 11. In the form shown, the upper section 20, of the trigger 19, is threaded to receive two nuts 21. Between these nuts is secured a short bar 22 having a central hole adapted to receive the threaded portion 20 of the trigger 19. On the outer ends of the bar 22 are two smaller holes to which the cords 11 are secured. The cords pass through a single hole in the leg 18 and one is secured directly to the forward hole in bar 22 whereas the remaining cord passes over a small pulley 23, pivoted in the upper portion of leg 16, and is secured in the rear hole of bar 22.

It is obvious from the above description that transportation of the bar 17 forwardly will exert a pull on the upper cord whereas a rearwardly movement would exert a pull on the lower cord.

In this form of the invention, similar springs 24 and 25 are placed on the ends of the bar 17 outside of the J member 14. A nut 26, threadably attached to the forward end of bar 17 holds the front spring 24 in position, while a button 27, threadably secured to the rear end of bar 17 holds the rear spring 25 in place. Since the springs are evenly matched, the trigger 19 will maintain a centrally located position when it is at rest.

In operation of the handle with the plane in

flight, the operator would first adjust the rest position of bar 17 to coincide with horizontal flight of the plane. This is accomplished by rotating the threaded nut 26 in one direction or the other in order to compress or relax spring 24. This operation would displace the trigger and bar assembly either forwardly or rearwardly and the degree of adjustment required would be determined by the action of the plane. To operate or control the plane, the operator would either pull the trigger 19 to the rear with his index finger or displace the bar 17 forwardly by pressing on the button 27 with his thumb. The response of the plane to either of the above movements can be altered to suit the desire of the individual by merely interchanging the two control cords 11 either in the plane or as they are attached to the control handle.

From the illustration in Figure 1, it becomes readily apparent that should the plane be looped, or should the handle be held in one position as the plane rotates about it, the cords 11 will become twisted. Although this twisting would render present types of handles completely ineffective, a handle in accordance with this invention will continue to operate after many twists are in the cords. Furthermore, this new handle permits much greater ease of operation since very fine adjustments are available as well as large rapid adjustments, should the occasion arise.

An alternate form of the invention is shown in Figure 3, and is identical to the first form described except that it provides for an alternate method of operation. In this instance a short spring 31 is placed on the rear extension of bar 17 and is held in place by a nut 32. A relatively long spring 33 is positioned over the front extension of bar 17 and in turn is held in place by a nut 34. It will be noted that the trigger 19 has now been displaced forwardly, and that the thumb actuated button has been omitted. To operate this handle, the trigger is pulled to a central position and maintained at that point for horizontal flight. Control of the plane in flight is then accomplished by pulling the trigger assembly farther to the rear or permitting the forward spring 33 to displace it forwardly.

Still another form of this invention would consist of a handle as shown in Figure 3, but wherein all control would be accomplished by the action of the thumb alone.

Although specific forms and embodiments of this invention are shown, it is apparent that modification and alterations may be made by those skilled in the art without departing from the true scope and spirit of the disclosure.

What is claimed is:

1. A control handle for guiding model planes in flight by means of cords, and comprising an inverted J frame having a hole in each leg thereof and said holes being axially aligned, a bar slidably disposed in said holes, a trigger secured to said bar for transporting it to the rear, the shorter leg of said frame having a second hole to receive the control cords for guiding the plane, a pulley on the longer leg of the said frame and about which one of the said control cords pass, means on the said slidable bar for securing the control cords, for the transmission of movement of the said bar to the said plane, and springs associated with the said bar to maintain said bar in a predetermined position.

2. A control handle for guiding model planes in flight by means of cords, and comprising an inverted J frame having a hole in each leg thereof and said holes being axially aligned, a bar slidably disposed in said holes, a trigger secured to said bar for transporting it to the rear, the shorter leg of said frame having a second hole to receive the control cords for guiding the plane, a pulley on the longer leg of the said frame and about which one of the said control cords pass, means on the said slidable bar for directly securing the control cords thereto, for the transmission of movement of the said bar to the said plane, springs associated with said bar to oppose the movement thereof, and a thumb operated button on the rear end of said bar for forwardly displacing same.

3. A control handle for guiding model planes in flight by means of control cords, and comprising an inverted J frame having a hole in each leg thereof and said holes being axially aligned, a bar slidably disposed in said holes, a second hole in the shorter leg of the said frame to receive the control cords for guiding the plane, a pulley on the longer leg of the said frame, and about which one of the control cords pass, means on said bar for securing the said cords for transmitting motion of the said bar to the said plane, a thumb operated button on the rear end of said bar for the forward displacement thereof, and springs for maintaining said bar in a predetermined position.

4. A control handle for guiding model planes in flight, comprising a frame, a hand grip thereon, a horizontal bar slidably maintained in said frame, a spring at each end of said bar to resist longitudinal displacement thereof, a trigger intermediate the ends of said bar for actuating same longitudinally against the resistance of one of said springs, a bar carried by said trigger, and a control cord attached to each end of the last-mentioned bar and to the plane.

JOSEPH LOUIS DE BARBIERI.
EDWARD KISHNER.

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