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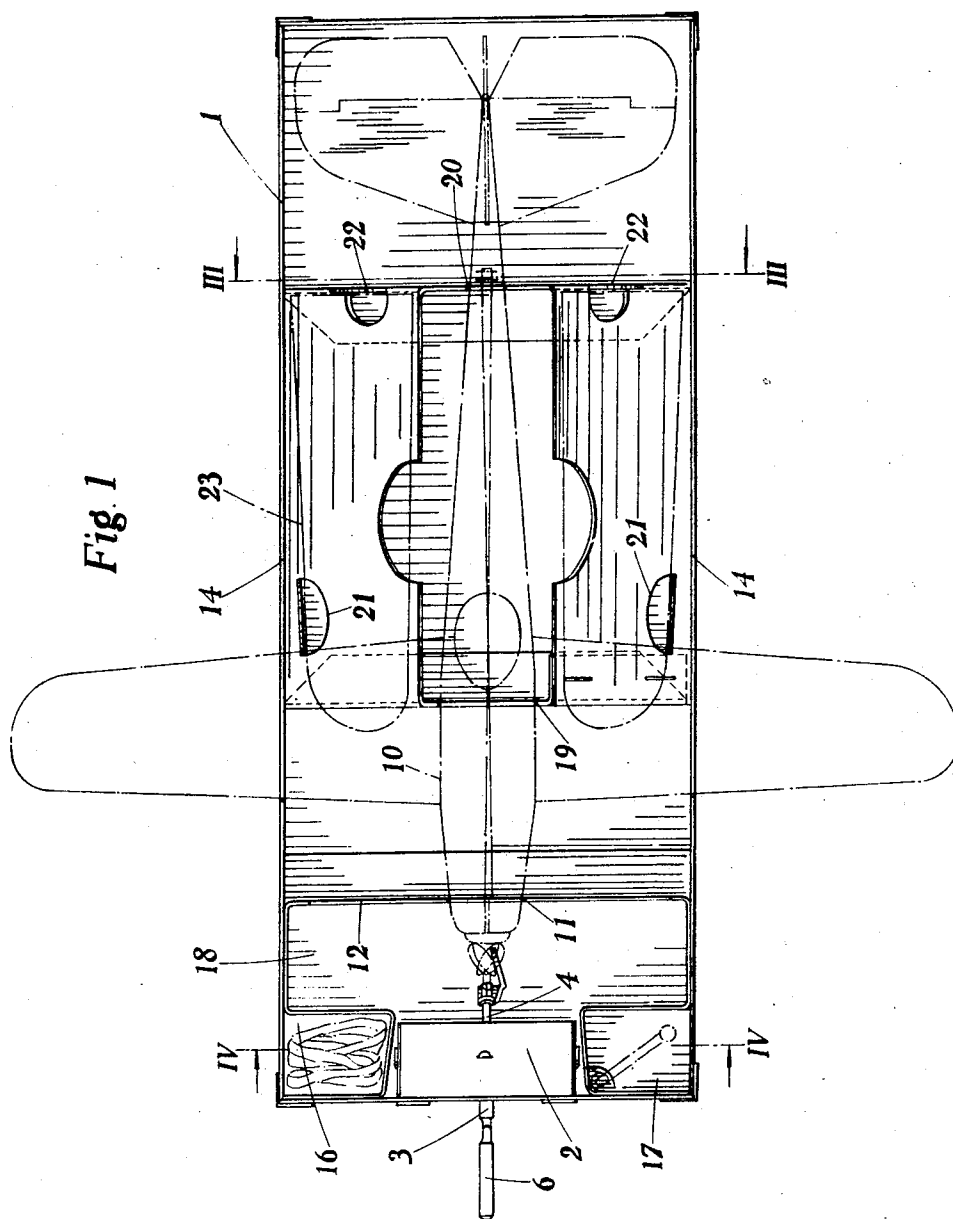
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1,935,534

DEVICE FOR WINDING MODEL AEROPLANES

Filed March 31, 1932

2 Sheets-Sheet 1



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Fig. 2.

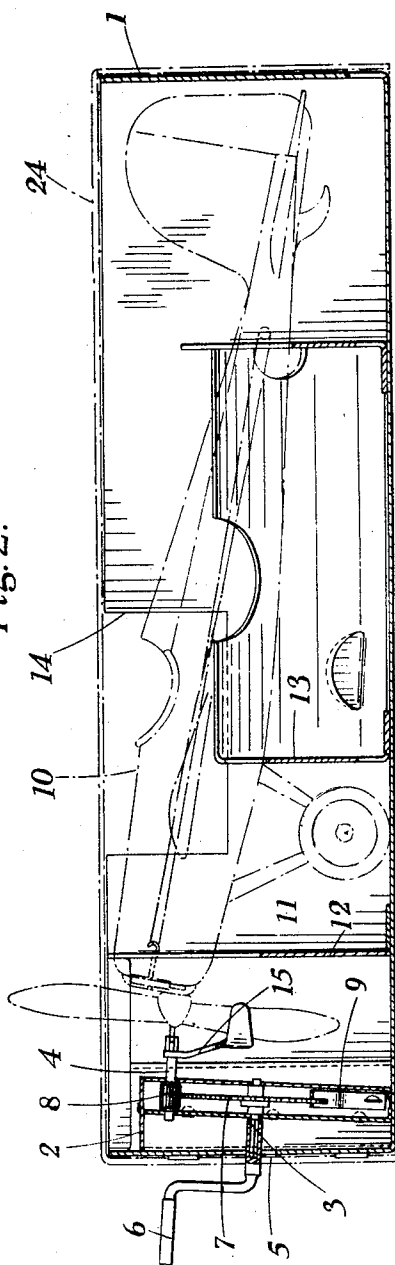


Fig. 4.

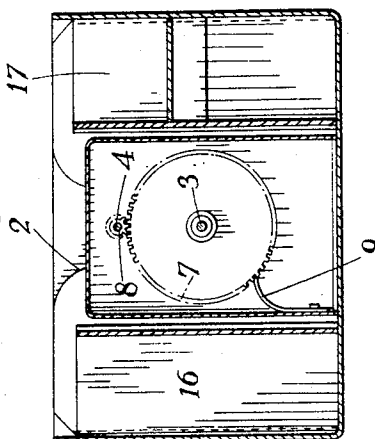
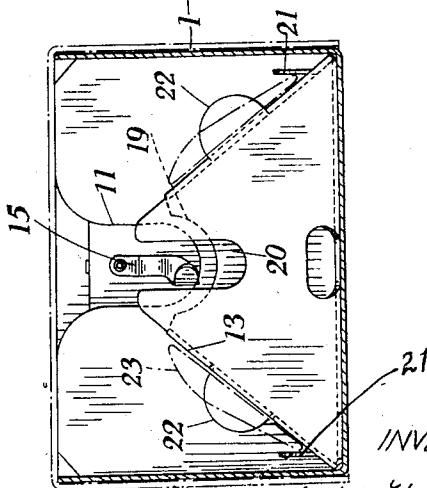


Fig. 3.



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DEVICE FOR WINDING MODEL
AEROPLANESCharles Mandeville Wilmot and John Mandeville
Wilmot, London, EnglandApplication March 31, 1932, Serial No. 602,304,
and in Great Britain April 14, 1931

9 Claims. (Cl. 46—50)

This invention relates to devices for use in winding model or toy aeroplanes.

The principal object of the invention is to provide a combined winder and container for a model aeroplane so that the latter may be safely held and protected from damage when not in use, and that there is no need to provide a winding device separate from the container.

Another object of the invention is to provide an improved form of container for a model aeroplane having detachable wings such, for example, as those of the kind set forth in United States patent application Serial No. 525,004 filed 24th March 1931.

Other objects of the invention will hereinafter appear.

In order that the invention may be clearly understood and readily carried into effect, one construction in accordance therewith will now be described by way of example with reference to the accompanying drawings, in which

Figure 1 is a plan of a combined containing box and winding device;

Figure 2 is a longitudinal section through the same box, and

Figures 3 and 4 are sections on the lines III—III and IV—IV respectively of Figure 1.

Referring to the drawings, the device consists of a rectangular cardboard box 1 having at one end a metal casing 2 in which are journaled two spindles 3 and 4. The spindle 3 projects through an aperture 5 in the end of the box 1 and is made square in cross-section so as to receive a winding key 6. The spindle 3 is connected through step-up gearing 7, 8 to drive the spindle 4, and a pawl in the form of a spring 9 is provided to prevent unwinding of the air-screw or accidental winding thereof in the wrong direction.

The box is intended to receive a model aeroplane of the kind illustrated in United States patent application Serial No. 525,004, and such an aeroplane is shown at 10 in chain lines in Figures 1 and 2. The box is internally so fitted that the fuselage of the aeroplane 10 enters a substantially U-shaped slot 11 in a transverse partition 12, while part of the fuselage rests upon a cradle 13 and the wings pass through rectangular slots 14 formed in the side of the box 1. When it is desired to wind the motor of the aeroplane, the latter is advanced slightly in the box so that the air-screw shaft enters a hollow socket formed on the end of the spindle 4 and the air-screw itself is engaged by an L-shaped arm 15 fixed on the end of the spindle 4. Rotation of the winding key 6 will then serve

to wind up the motor, and the aeroplane will be held against rotation by virtue of the engagement of the fuselage in the U-shaped slot 11 in the partition 12. The end of the arm 15 is inclined to the axis of the air-screw at a slightly smaller angle than the surface of the air-screw with which it comes in contact, as shown in Figure 1. The result of this is that the point of the arm 15 does not tend to dig into the air-screw, but during rotation the arm pulls the air-screw, and thus the whole aeroplane, forwards, and so causes the end of the air-screw spindle to enter the socket formed on the end of the spindle 4. It is not, therefore, necessary to force the aeroplane forwards by hand during the winding operation.

The partition 12 constitutes part of a single length of cardboard which is bent as shown to form two small pockets or compartments 16 and 17, one of which may conveniently contain a spare elastic motor and the other the winding key when the latter is not in use. The partition 12 also forms with the casing 2 and the pockets 16 and 17 a large pocket or compartment 18 which extends completely across the width of the box 1 and in which the air-screw is accommodated both when the box is used as a container and when it is used as a winding device.

The cradle 13, which is also made of cardboard, has two sloping sides as shown with a gap between the upper edges and two substantially triangular ends formed with notches 19 and 20 which receive the fuselage. When the box is to be used as a container, the wings of the aeroplane are detached and are laid along the sides of the cradle where they are held safely in position by means of semicircular tongues 21 formed by making semi-circular slits and then bending outwards slightly the pieces of material within the slits. Ears 22 similarly formed are provided at the rearward end of the cradle to locate the wings in position longitudinally. The wings thus held are shown in chain lines at 23 in Figures 1 and 3. When the wings are provided with ribs which receive transverse spars projecting from the fuselage as described in United States patent application Serial No. 525,004, the spars project across the tops of the wings and hold the latter when they are resting on the cradle. The cradle may easily be made from a single piece of cardboard suitably cut and bent, and has the additional advantage that it serves to prevent the aeroplane being crushed if the sides of the box should be pressed in accidentally.

When the whole aeroplane is packed in the box, the latter may be enclosed within a deep cover 24 indicated in chain lines in Figure 2.

Of course, in all the constructions according to the invention any suitable multiplying driving connection may be inserted between the two rotatable spindles provided that it is sufficiently positive and does not slip when the motor is being wound. For example, instead of the toothed wheels illustrated, a gear train including bevel or crown wheels may be used or, again, a small driving chain may be used if desired.

In a modification a device is provided for use with aeroplanes having two or more air-screws and motors. In this case as many driven spindles are provided as there are air-screws and each is driven through a multiplying driving connection from the driving spindle. For example the latter may drive one large gear wheel which may mesh with two smaller wheels, each carrying a chuck for engagement with one air-screw of an aeroplane having two air-screws. In the case of aeroplanes in which air-screws are arranged to rotate in different directions, it is most convenient to drive the separate winding chucks by means of small chains from the driving spindle, because one or more of the chains can be crossed so as to give the desired reversal of rotation.

If desired an indicator may be provided to show the number of turns that have been given to the air-screw during winding.

Although the invention has been particularly described in connection with toy aeroplanes constituting scale models of full size aircraft, it may obviously also be applied to devices for winding spar machines in which there is no fuselage but simply a longitudinal spar or rod.

The particular advantage obtained by means of the invention is that the box or frame can be held in one hand and the winding effected by the other, whereas in previous cases where a winder has been used it has been necessary either to have two people present or to fix either the winder or the aeroplane to some stationary object.

We claim:—

1. A device for use in winding the driving means of a model aeroplane comprising in combination a box, a handle journaled in said box, connecting means for transmitting rotary movement of said handle relatively to said box to the driving means of a model aeroplane placed in said box, and means incorporated as a part of the box structure in said box adapted to prevent movement of the aeroplane relatively to said box as a result of torque reaction due to the winding of said driving means.

2. A device for use in winding the driving means of a model aeroplane comprising in combination a rectangular box, a metal frame inside said rectangular box adjacent one side thereof and fixed thereto, a driving rotatable spindle and a driven rotatable spindle both journaled in said metal frame, a handle located on the outside of said box connected to said driving rotatable spindle, a step-up gearing connecting driving and said driven rotatable spindles, means upon said driven rotatable spindle adapted to engage an airscrew of an aeroplane placed in said box and to cause said airscrew to turn when said handle is turned, and means in said box adapted to prevent movement of said model aeroplane as a result of torque reaction due to the turning of said airscrew.

3. A device for use in winding the driving means of a model aeroplane comprising in combination a frame adapted to engage a model aeroplane, a driving spindle and a driven spindle both journaled in said frame, a handle fixed to said driving spindle, a multiplying driving connection between said driving spindle and said driven spindle so arranged that the latter will turn faster than said driving spindle, an arm fixed substantially at right angles to said driven spindle, a lug fixed to said arm in a position remote from said driven spindle, said lug being adapted to contact with a blade of the airscrew of a model aeroplane engaged by said frame and rotate said airscrew upon rotation of said driven spindle, said lug being so shaped that it contacts with said blade of said airscrew at such an angle relatively to the longitudinal axis of said model aeroplane that upon rotation of said arm said model aeroplane is urged towards said driven spindle, and centering means upon said driven spindle adapted to engage the centre of said airscrew when the latter is urged forward by said lug, said frame being so arranged as to prevent turning movement of said model aeroplane relatively to it as a result of torque reaction due to the turning of said airscrew.

4. A device for use in winding the driving means of a model aeroplane comprising in combination a box, a cradle fixed inside said box and so shaped as to receive the fuselage of a model aeroplane and hold said fuselage against any tendency to turn about its longitudinal axis, a handle journaled in said box, connecting means attached to said box for transmitting rotary movement of said handle relatively to said box to the airscrew of a model aeroplane engaged by said cradle, and a multiplying drive incorporated in said connecting means and so arranged that when said handle is turned said airscrew is wound at a greater rate than the rate at which said handle is turned.

5. A toy comprising in combination a model aeroplane having a fuselage, a rectangular box, a cradle fixed in said box and adapted to hold the centre portion of the fuselage of said model aeroplane, a partition in said box formed with a slot located so as to engage the nose of the fuselage of said model aeroplane when held by said cradle, said partition and said cradle being operative to hold said model aeroplane against rotation about its longitudinal axis, winding means fixed in said box adapted to wind the driving means of said model aeroplane when its fuselage is engaged by said cradle and said partition, and a cover for closing said box.

6. A toy comprising in combination a model aeroplane having a fuselage, a rectangular box, a strip in said box so bent as to form with the walls of said box compartments located at the end of said box, winding means fixed in one of said compartments for winding the driving means of said model aeroplane, supporting means in said box for the fuselage of said model aeroplane, said supporting means being adapted to locate said model aeroplane in a position such that it can be engaged by said winding means and to prevent any tendency for said fuselage to rotate about its longitudinal axis.

7. A device for use in winding the driving means of a model aeroplane comprising in combination a box, a frame inside said box adjacent one side thereof and fixed thereto, a driving rotatable spindle and a driven rotatable spindle both journaled in said frame, a handle located

on the outside of said box connected to said driving rotatable spindle, a multiplying driving connection between said driving and driven rotatable spindles, means upon said driven rotatable spindle adapted to engage an airscrew of an aeroplane placed in said box and to cause said airscrew to turn when said handle is turned, and means in said box adapted to prevent movement of said model aeroplane as a result of torque reaction due to the turning of said airscrew.

8. In a device for use in winding the driving means of a model aeroplane, a box adapted to receive and hold the aeroplane, a handle journaled in said box, connecting means secured in said box for transmitting rotary movement of said handle to the driving means of a model aeroplane placed in said box, and means incor-

porated as a part of the box structure adapted to prevent movement of the aeroplane relatively to the said box as a result of torque reaction due to the winding of said driving means.

9. In a device for use in winding the driving means of a model aeroplane, a box, gearing secured to the said box, a handle journaled in the box and operative to rotate the gearing, means for transmitting the rotary motion of the gearing to the driving means of a model aeroplane placed in the said box, and means incorporated as a part of the said box structure adapted to prevent movement of the aeroplane relatively to the said box as a result of torque reaction due to the winding of said driving means.

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