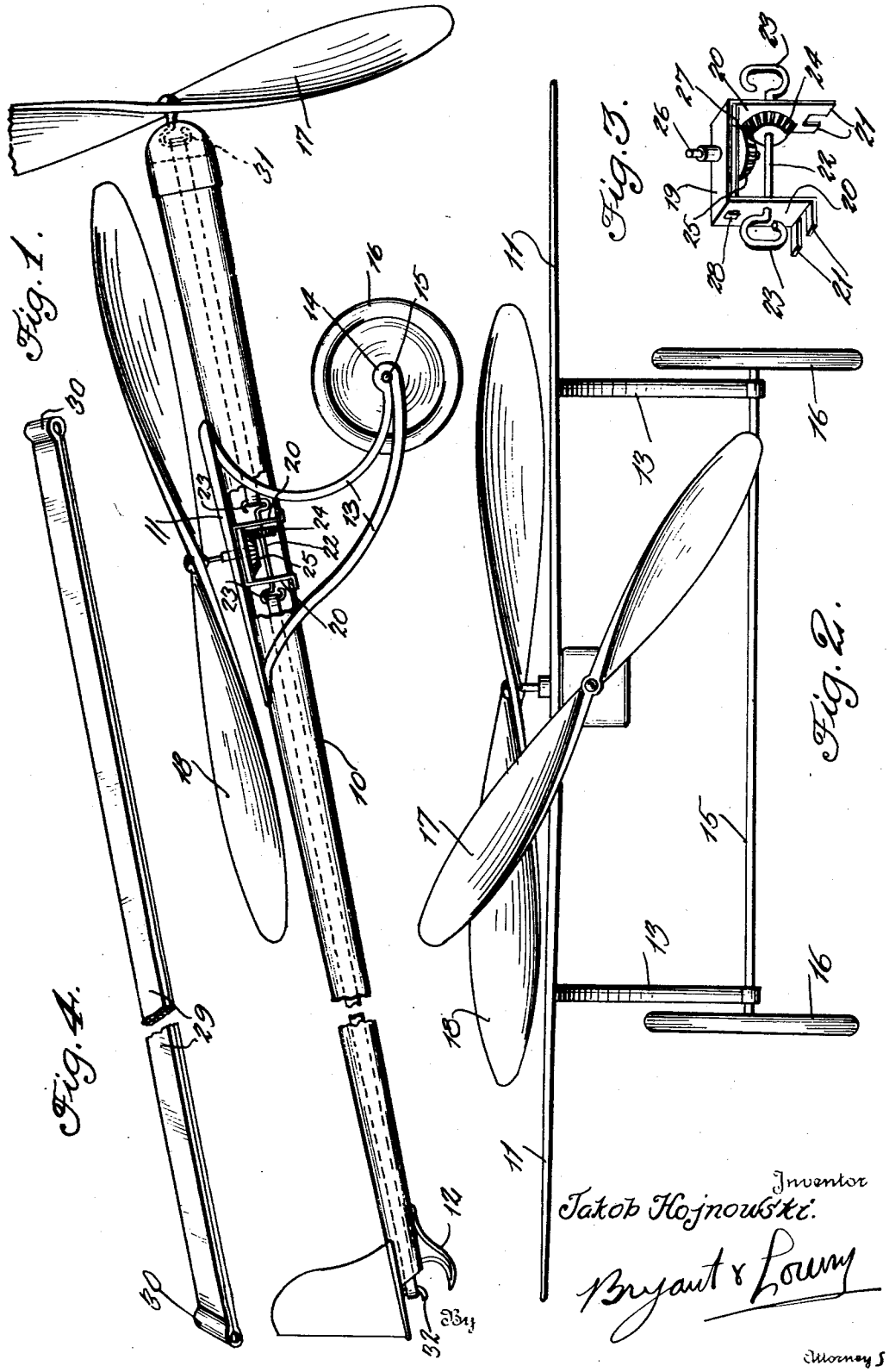
Sept. 26, 1933. J. HOJNOWSKI 1,928,154

AIRPLANE TOY

Filed Dec. 12, 1932 2 Sheets-Sheet 1

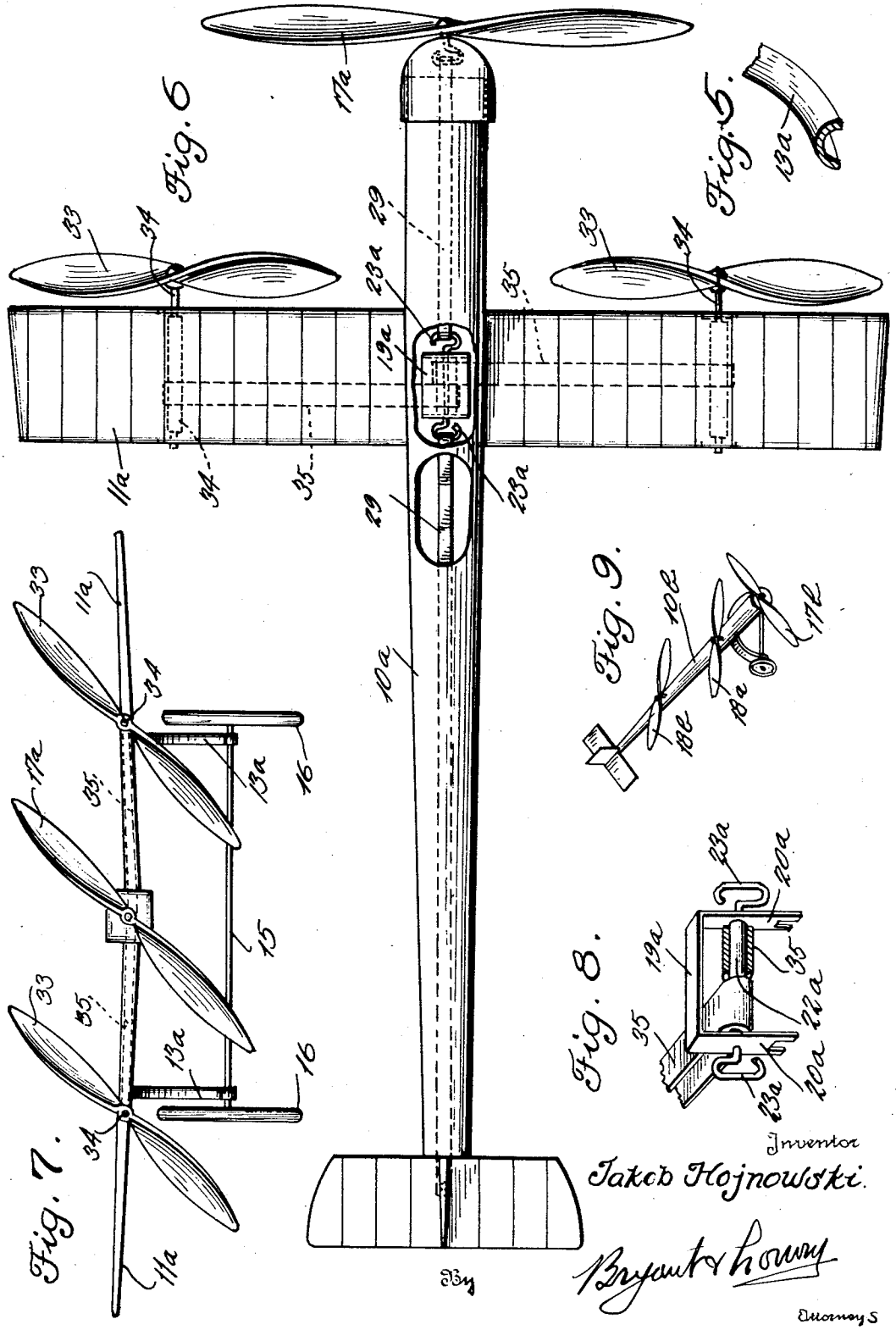


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AIRPLANE TOY

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Serial No. 646,887

10 Claims. (Cl. 46—50)

This invention relates to certain new and useful improvements in airplane toys.

The primary object of the invention is to provide an airplane toy having a journalled rod or shaft extending longitudinally of the body or fuselage at a point intermediate its ends and adapted to be rotated through the medium of elastic cords or tapes for the supply of motive power either by way of meshing gears or belt drives to helicopter or other propeller blade.

A further object of the invention is to provide an airplane toy of the foregoing character wherein the landing gear includes a skid depending from the empinage and a resilient wheeled frame for shock absorption during landing of the airplane toy.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings:—

Figure 1 is a side elevational view, partly broken away and shown in section of an airplane toy constructed in accordance with the present invention showing the double elastic cord or tape drive for the forwardly positioned propeller blade and upper horizontally disposed helicopter propeller blade;

Figure 2 is a front elevational view of the airplane toy shown in Figure 1;

Figure 3 is a perspective view of the frame and drive gear devices carried thereby for the helicopter propeller blade;

Figure 4 is a fragmentary perspective view of the elastic tape constituting the motive power;

Figure 5 is a fragmentary perspective view, partly in section of one of the resilient bars of the wheeled landing gear frame;

Figure 6 is a top plan view of another form of airplane toy, partly broken away to illustrate the belt drive connection for the laterally positioned propeller blade;

Figure 7 is a front elevational view of the airplane toy shown in Figure 6;

Figure 8 is a perspective view of the frame shown in Figure 6 and illustrating the belt drives for the laterally positioned propeller blade passing around the elastic tape operated shaft; and

Figure 9 is a diagrammatic perspective view, similar to Figure 1, showing two helicopter propeller blades.

Referring more in detail to the accompanying drawings and particularly to Figures 1 to 5, there is illustrated an airplane toy comprising a body portion or fuselage 10 carrying a plane or wing 11, the rear end of the fuselage 10 carrying a depending skid 12. The wheeled landing gear for the airplane toy includes a pair of resilient strap irons, each having a pair of legs 13 diverging at their upper ends and attached to the underside of the wing 11 while the lower ends of the legs 13 diverge to form a bearing 14 for the support of an axle 15 that carries a ground wheel 16 upon each end thereof. Each leg 13 is curved transversely as shown at 13*a* in Figure 5 for strengthening the landing gear, but without removing the resiliency thereof.

A propeller blade 17 is carried by the forward end of the fuselage 10 while a horizontally disposed helicopter propeller blade 18 is located above the fuselage at a point intermediate the ends thereof. The driving means for the propeller blades 17 and 18 includes a frame of inverted U-shape as shown in Figure 3 that includes a cross head 19 carrying depending side legs 20 to be set into the fuselage 10 as shown in Figure 1, the lower ends of the side legs 20 being bifurcated to provide spaced lugs 21 for passage through openings in the bottom wall of the fuselage 10 and thereafter bent at right angles for locking the frame in position. A shaft 22 is journalled in the side legs 20 of the frame with the ends thereof projecting outwardly of the side legs, each provided with a hook 23. A bevel gear 24 is keyed to the shaft 22 adjacent one end thereof at the inner side of one of the legs 20 and is in meshing engagement with the bevel gear 25 keyed to the shaft 26 journalled in the cross head 19 of the frame, the shaft 26 projecting upwardly through the wing 11 and having the helicopter propeller blade 18 fixed thereto. To maintain the bevel gear 25 in meshing engagement with the bevel gear 24, the strap 27 is positioned between the gear 25 and upper cross head 19 of the frame, having an opening therein for the free passage of the shaft 26 and with the ends 28 of the strap 27 being in the form of lugs extending through openings in the side legs 20 of the frame to be bent at right angles for securing the strap in position. The rotating means for the shaft 22 includes a pair of elastic tapes 29, one of which is shown in detail in Figure 4, as having opposite side portions thereof secured together and provided at each end with a loop 30, an elastic tape having the loop 30 at one end thereof being engaged with the hooks 23 upon the shaft 22, while the outer ends of the two elastic tapes 29 are respectively attached to a hook 31

carried by the bearing for the forwardly positioned propeller blade 17 and a hook 32 at the rear open end of the fuselage 10 as shown in Figure 1.

The elastic tapes 29 constitute the motive power for the propeller blades 17 and 18 and may be placed under tension by reversely rotating either of the propeller blades, the stored power in the elastic tapes 29 being utilized for the rotation of the shaft 22 and operation of the forwardly positioned propeller blades 17 as well as the helicopter propeller blade 18 through the medium of the meshing gears 24 and 25. It is possible to store sufficient energy in the elastic tapes 29 to cause the airplane toy to fly through the air, shocks incident to landing being absorbed by the resilient legs 13 of the landing gear.

In the form of invention illustrated in Figures 6 to 8, the shaft 22*a* is journalled in the side legs 20*a* of the inverted U-shaped frame, the helicopter propeller being eliminated and laterally positioned propeller blades 33 are carried by shafts 34 journalled in the wing 11*a* laterally of the fuselage 10*a*. The shaft 22*a* is rotated by the elastic tape 29 attached to the hooks 23*a*, the rear end of the rearwardly positioned elastic tape 29 being anchored at a point adjacent the rear end of the fuselage while the forward end of the forwardly positioned elastic tape 29 is attached to the forwardly positioned propeller blade 17*a*. The drive means for the laterally positioned propeller blades 33 include a pair of belts 35, both passing over the shaft 22*a* and respectively passing over the shaft 34 at their outer looped ends. The elastic tapes 29 are placed under tension by reversely rotating the forwardly positioned propeller blades 17*a*, power therein being imparted to the shaft 22*a* for the driving of the belt 35 for the operation of the laterally positioned propeller blades 33, the shaft 22*a* directly driving through the medium of the elastic tapes, the forwardly positioned propeller blades 17*a*.

As diagrammatically illustrated in Figure 9, the fuselage 10*b* carries a forwardly positioned propeller blade 17*b* and a pair of helicopter propeller blades 18*a* and 18*b* respectively, the propeller blade 18*a* being preferably operated by a gear drive such as shown in detail in Figure 3, while the propeller blade 18*b* may have the belt connection with the shaft 26 that supports the helicopter propeller blade 18*a*.

From the above detailed description of the invention, it is believed that the construction and operation thereof will at once be apparent, and while there are herein shown and described the preferred embodiments of the invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

I claim:—

1. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to a stationary support at the rear end of the fuselage, and another propeller blade positioned intermediate the ends of the fuselage and operatively associated with said shaft.

2. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, a helicopter propeller blade having a shaft journalled in the upper end of the frame and gear connections between the two shafts.

3. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, a pair of laterally positioned propeller blades and drive belt connections between the shaft and lateral propeller blades.

4. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, another propeller blade operatively associated with said shaft, and a landing gear including pairs of resilient arms transversely curved, diverging at their upper ends for attachment to the wing of the toy and converging at their lower ends to form bearings for a wheel carried axle.

5. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, a helicopter propeller blade having a shaft journalled in the upper end of the frame and gear connections between the two shafts, and a landing gear including pairs of resilient arms transversely curved, diverging at their upper ends for attachment to the wing of the toy and converging at their lower ends to form bearings for a wheel carried axle.

6. In an airplane toy, a fuselage, an inverted U-shaed frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, a pair of laterally positioned propeller blades and drive belt connections between the shaft and lateral propeller blades, and a landing gear including pairs of resilient arms transversely curved, diverging at their upper ends for attachment to the wing of the toy and converging at their lower ends to form bearings for a wheel carried axle.

7. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, and another propeller blade operatively associated with said shaft, the frame including an upper cross-head and depending side legs with the lower ends of the side legs bifurcated to provide lugs for inter-

locking engagement with the bottom wall of the fuselage.

8. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, a helicopter propeller blade having a shaft journalled in the upper end of the frame and gear connections between the two shafts, the frame including an upper cross-head and depending side legs with the lower ends of the side legs bifurcated to provide lugs for interlocking engagement with the bottom wall of the fuselage.

9. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, a pair of laterally positioned propeller blades and drive belt connections between the shaft and lateral propeller blades, the frame including an upper cross-head and depending side legs with the lower ends of the side legs bifurcated to provide lugs for interlocking engagement with the bottom wall of the fuselage.

10. In an airplane toy, a fuselage, an inverted U-shaped frame set therein, a longitudinally extending shaft journalled in the side portions of the frame and having a hook at each end, a forwardly positioned propeller blade, an elastic tape connecting the forward hook to the propeller blade, a second elastic tape connecting the rear hook to the rear end of the fuselage, a helicopter propeller blade having a shaft journalled in the upper end of the frame and gear connections between the two shafts, and means carried by the frame and engaged with one gear for holding the gears in meshing engagement.

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