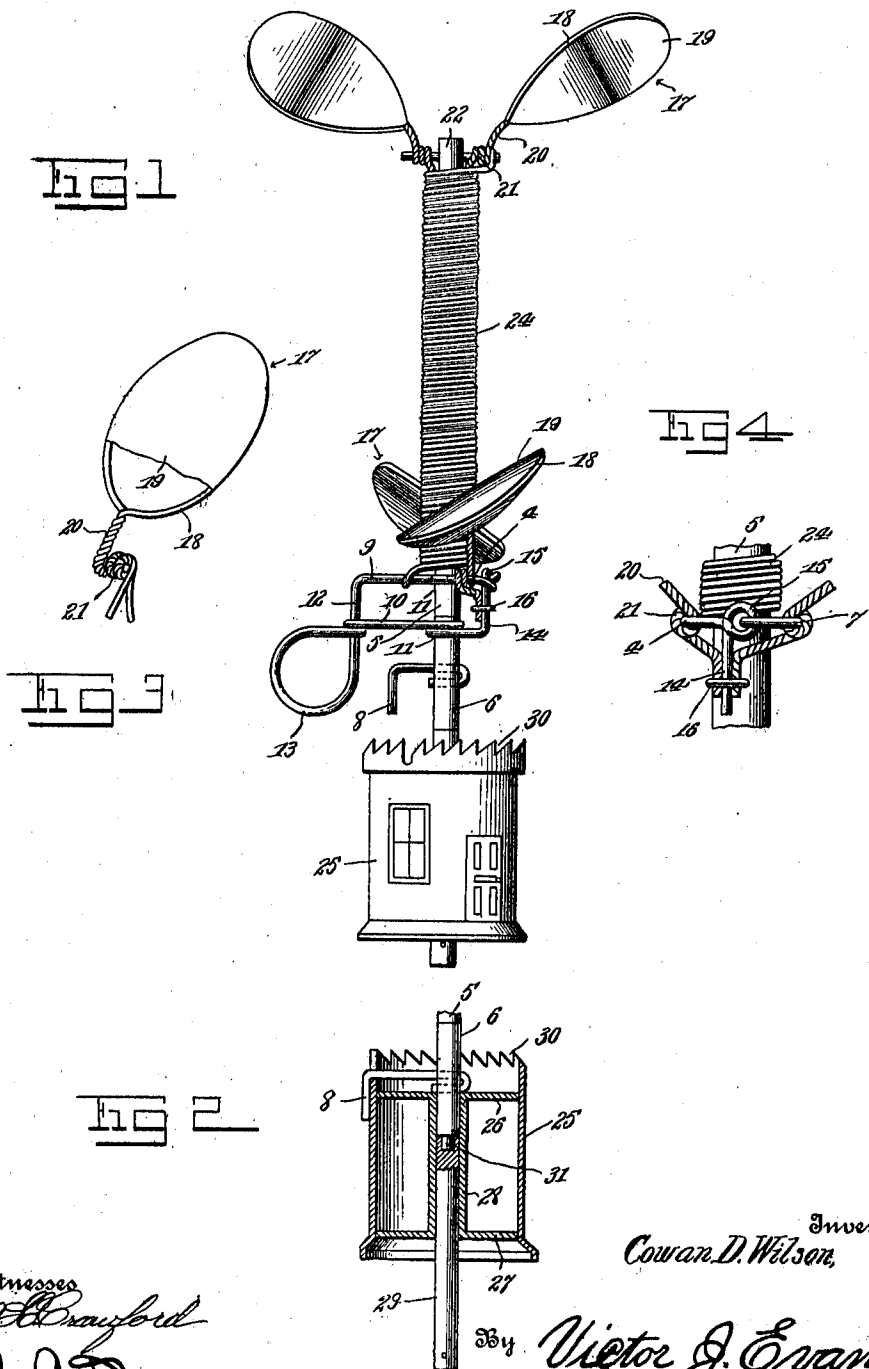


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TOY FLYING MACHINE.
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982,653.

Patented Jan. 24, 1911.



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COWAN D. WILSON, OF BIG STONE GAP, VIRGINIA, ASSIGNOR OF ONE-HALF TO
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TOY FLYING-MACHINE.

982,653.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, COWAN D. WILSON, a citizen of the United States, residing at Big Stone Gap, in the county of Wise and State of Virginia, have invented new and useful Improvements in Toy Flying-Machines, of which the following is a specification.

This invention relates to toys and more particularly to toy flying machines.

One object of the invention is the provision of a toy flying machine including a shaft surrounded by a spring, and a plurality of propeller blades actuated by the spring to turn in different planes.

Another object is the provision of a shaft provided with an ornament in the form of a clutch adapted to be moved into engagement with the spring tensioning means to lock the same after the spring has been tensioned and until it is desired to release the device.

With these and other objects in view, which will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims; it being understood that various changes in the form, proportion, size, and minor details of the device may be made, within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, forming part of the specification;—Figure 1 is a front elevation of the device. Fig. 2 is a sectional view taken through the clutch member showing its application to the shaft. Fig. 3 is a detail perspective of one of the propeller blades with a portion of the body removed and disclosing the frame. Fig. 4 is a detail side elevation of the connection for the lower blades.

Similar numerals of reference are employed to designate corresponding parts throughout.

What will subsequently be termed a shaft is designated by the numeral 5, and may be of any convenient length. The shaft, adjacent to one end, is provided with a ferrule 6 having transverse openings at its medial portion through which is passed the bent end

portion of a stout steel wire, the free end portion of the wire being bent at right angles as shown at 8 to provide a handle, which extends parallel with the shaft 5.

What will subsequently be termed a holding frame is shown to be formed of a single piece of wire bent into substantially a U-shape, the opposite limbs of said frame being designated by the numerals 9 and 10. Adjacent to their medial portions the limbs 9 and 10 are provided with loops 11 the axes of which are perpendicular to the lengths of the limbs and of a size to loosely receive the inner end portion of the ferrule 6 and one end portion of the shaft 5, above the handle. The portion 12 connecting said limbs extends, for a portion of its length parallel with the shaft 5, and terminates in a loop 13, the function of which will appear later. The limb 10, adjacent to its free end is bent at right angles as shown at 14 and then coiled around the limb 9 as shown at 15 and then extended laterally as shown at 7'; the free end portion of the limb 9 being extended in the opposite direction as shown at 4. Loosely fitted on the portion 14 is a ring 16, the function of which will appear later.

The propeller blades are designated by the numeral 17 and since all are identical in structure a description of one will be sufficient. By referring to the drawings it will be seen that the propeller blades each include an elliptical-shaped frame formed of a single piece of wire and designated by the numeral 18. Stretched over the frame is a textile covering designated by the numeral 19. The free end portions of the wire are twisted one upon the other for portions of their lengths to provide a shank 20, the said shank being in alinement with the long axis of the frame. The shank 20 is medially provided with a loop 21, the axis of which is at substantially right angles to the axis of the shank.

By reference to the drawings it will be seen that the end of the shaft opposite to the end provided with the holding frame is provided with a ferrule 22, the said ferrule having a transverse opening to receive a stout steel wire, the opposite end portions of the wire extending at right angles to the shaft 5. Encircling the shaft 5 is a helical spring 24 one terminal of which is secured to the limb 9 of the holding frame and the opposite terminal of which is provided with

an eye to receive one end portion of the wire at the opposite end of the shaft. In assembling the parts a pair of blades are arranged at one end of the shaft, the loops 5 21 of said blades receiving the portions of the cross wire at that end of the shaft remote from the end provided with the holding frame, the blades being prevented from disengagement on the wire by means of the 10 untwisted portions of their shanks which engage the adjacent helices of the spring 24. The blades at the opposite end portion of the device have their loops 21 slipped over the portions 7 and 4 of the holding frame 15 extending beyond the coiled portion 15 and the end portions of their shanks being bent parallel with the right angularly bent portion 14 of the limb 10. When the bent portions of the shanks of the last-named blades 20 bear on the bent portion 14 the ring 16 is moved until it embraces the bent portions of said shanks thus securing the blades against displacement.

After the parts have been assembled in 25 the manner just described, it will be manifest that when the operator with the fingers of one hand holds the looped portion 13 of the holding frame, and with the other hand turns the shaft 5 by means of the 30 handle, the spring 24 will be tensioned, and when pressure is removed from the handle the energy of the spring will rotate the holding frame and also the shaft 5, whereupon turning movement will be imparted to the 35 blades at that end of the shaft remote from the holding frame. It will be seen when the handle and holding frame are released two pairs of wings will rotate in opposite directions as the device passes through the 40 air.

A means is provided to cooperate with the frame to hold the wings against movement after the spring has been tensioned in the manner before described, the said co- 45 operating holding means being further adapted to release the device after the same has been properly headed for flight. This holding means is in the form of a hollow cylinder designated by the numeral 25 and is interiorly provided adjacent to its oppo- 50 site ends with heads 26 and 27. The heads 26 and 27 are connected by a sleeve 28. Slidingly fitted in the sleeve 28 is a supplementary shaft 29, one end of which is pro- 55 vided with a socket to snugly receive a boss 31 at the lower end of the ferrule 6. The inner end portion of the shaft 29 or that provided with the socket extends to the medial portion of the sleeve and the por- 60 tion of the sleeve located beyond the inner end of the shaft 29 snugly receives the lower end portion of the ferrule 6. The end of the cylinder adjacent to the handle is provided with a plurality of teeth 30 which are 65 adapted to independently engage with the

handle 8 when the cylinder is moved in one direction and lengthwise of the shaft 5. With this construction it can be seen when the spring is tensioned in the manner before 70 described and the cylinder moved toward the spring so that one of the teeth thereof will engage with the handle 8 that by grasping the cylinder and holding the frame, movement of the blades under the action of 75 the spring will be prevented until the cylinder is moved in a direction away from the handle, whereupon the holding frame and cylinder are released and the device permitted to fly.

From the foregoing, it is evident that 80 I have provided a device which is comparatively simple in structure and inexpensive in manufacture, embodying few parts and these so arranged that the danger of de- 85 rangement will be reduced to a minimum.

I claim:—

1. A toy of the class described comprising a shaft, a plurality of propeller blades arranged on one end of the shaft, a holding 90 frame loosely fitted on the opposite end portion of the shaft, a plurality of propeller blades arranged on the said holding frame, and a spring encircling the shaft having its 95 opposite terminals connected to one end of the shaft and to said holding frame.

2. A toy of the class described comprising a shaft, a plurality of propeller blades fitted on one end portion of the shaft, a holding frame loosely fitted on the opposite 100 end portion of the shaft, a plurality of propeller blades connected with the said holding frame, a spring encircling the shaft having its opposite terminals secured to the shaft and holding frame, and a crank secured to the shaft for turning the latter to 105 tension said spring, for the purpose described.

3. A toy of the class described comprising a shaft, a plurality of propeller blades fitted on one end portion of the shaft, a holding 110 frame loosely fitted on the opposite end portion of the shaft, a plurality of propeller blades connected with the said holding frame and movable in a plane perpendicular to the plane of movement of the first-named 115 propeller blades, a spring encircling the shaft having its opposite terminals secured to the shaft and holding frame, a crank secured to the shaft for turning the latter to tension said spring, and a clutch member 120 slidingly fitted on the shaft adapted to be moved into and out of engagement with the crank, for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

COWAN D. WILSON.

Witnesses:

J. P. WOLFE,
R. D. BAKER.