Feb. 24, 1931. F. WORDEN 1,793,831

TOY

Filed Dec. 19, 1929

Fig. 1.

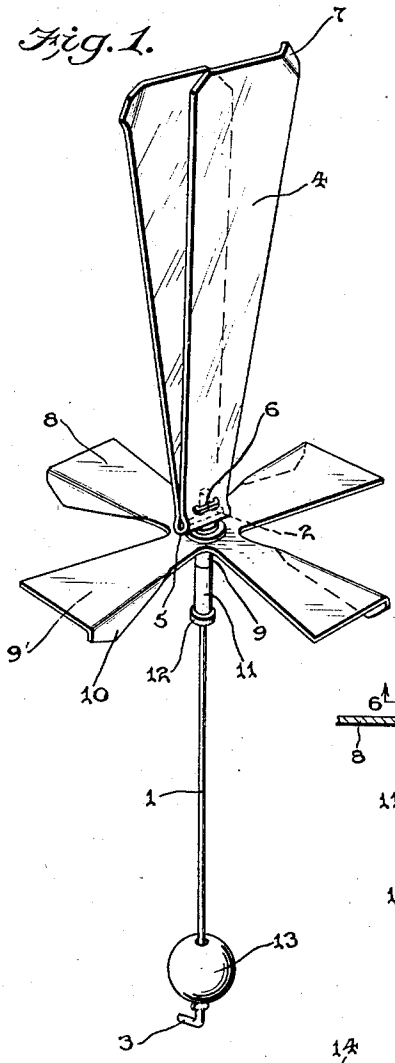


Fig. 2.

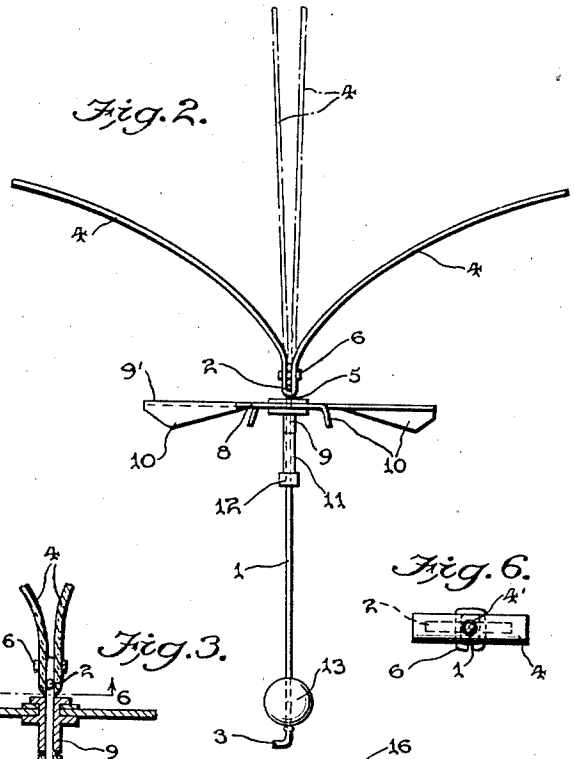


Fig. 3.

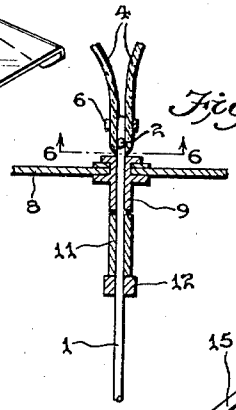


Fig. 6.

Fig. 4.

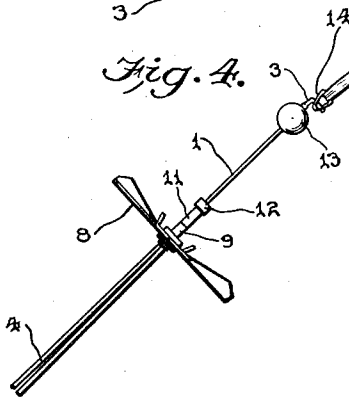
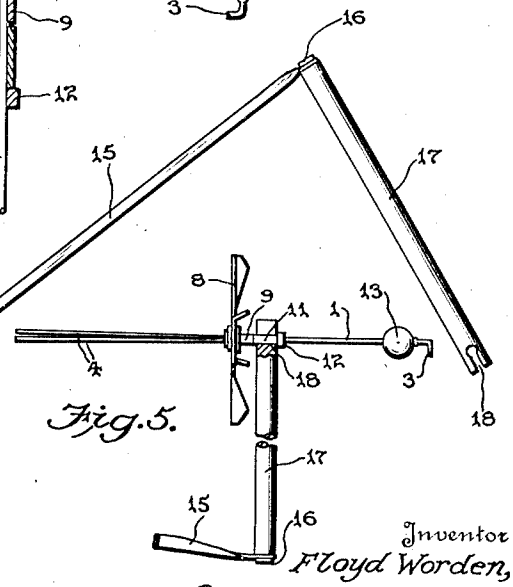


Fig. 5.



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UNITED STATES PATENT OFFICE

FLOYD WORDEN, OF ALLIANCE, NEBRASKA

TOY

Application filed December 19, 1929. Serial No. 415,308.

This invention relates to a toy, and more particularly to a spinning toy, simulating somewhat a helicopter when in the air.

One object of the invention resides in the provision of a toy which may be projected into the air or held in the hand of the operator, and in both instances, the air acting thereon will cause the toy to spin, producing a pleasing and amusing effect.

Another object is to provide a simple, inexpensive, durable and effective toy for the entertainment of children or others and which may be easily and readily operated as an aerial projectile or held in the operator's hand to obtain the same effect as to operation as when projected and sailing through the air.

Another object of the invention is to provide an aerial toy equipped with flat, resilient, normally contiguous vanes connected at their inner ends to a stem and adapted in the flight of the toy to rotate and spread, thereby retarding the descent of the toy and at the same time producing a floating action of the same in the air.

With these and other objects in view, the invention consists in the construction and novel arrangement and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, size, and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In the drawings:—

Figure 1 is a perspective view of the invention.

Fig. 2 is a side elevation of the invention showing the vanes in their open position in full lines and in their closed position in dotted lines.

Fig. 3 is an enlarged detail vertical sectional view showing the manner of attaching the vanes and mounting the propeller on the spindle.

Fig. 4 is a side elevation of the toy and projecting device, showing the toy attached to the end of an elastic element of the projecting device and arranged to project the toy into the air.

Fig. 5 is a similar view of the toy when mounted on the projecting device and arranged to be carried on the projecting device and operated by hand.

Fig. 6 is a sectional view on the line 6—6 looking upwardly in the direction of the arrows indicated in Fig. 3.

Referring now more particularly to the accompanying drawings, there is illustrated a metal or other shaft 1, one end of which is provided with a head 2, forming an effect at the upper end of the shaft of a cross shape. The other end of the shaft 1 is bent at a right angle forming a hook 3, as shown.

A pair of contiguous vanes 4 are secured to the headed end of the shaft. These vanes may be formed of any suitable resilient material. Two vanes are shown and these are formed of a single piece of resilient material of any suitable character folded intermediate its ends as at 5, but the vanes, which diverge to produce a lateral offsetting of the same with respect to each other, may be connected at their inner ends in any suitable manner. At the point of bend of this single piece of material there is provided an opening 4', which is adapted to embrace the shaft 1 below the head 2. To secure the vanes thus formed to the shaft and hold them tightly over the head 2, a rivet 6 or other suitable fastening means is passed through the vanes adjacent the head 2, as shown so as to hold the vanes rigidly with relation to the shaft. Any suitable number of vanes 4 may be employed, and it is to be understood that I do not wish to be limited to the use of only two vanes.

The vanes 4 extend preferably longitudinally from the shaft and at their outer ends each vane is preferably flanged by turning or bending the corresponding edges of the vanes at an angle to the vanes as denoted at 7, so as to facilitate rotation of the vanes and the shaft by air currents impinging against the flanges when the toy is sailing through the air. The flanges extend from the outer ends of the vanes which overlap and have their outer portions laterally offset with respect to each other, as clearly illustrated in

Fig. 1 of the drawing. The flanges and the adjacent exposed portions of the inner faces of the vanes cause the vanes in the flight of the toy to spread and rotate.

A propeller 8 provided with a hub 9 is loosely mounted on the shaft immediately below or adjacent the inner ends of the vanes. The propeller blades 9′ may be flanged as denoted at 10 against which air may impinge to rotate the propeller. The propeller may have any suitable number of blades. Below the propeller is a sleeve 11 which is loosely mounted on the shaft and held in position by a collar 12 with the inner end of the sleeve 11 preferably abutting the adjacent end of the hub 9. The sleeve 11 and collar 12, the latter being fixed to the shaft 1, maintains the propeller 8 in relatively close position to the inner ends of the vanes 4.

A weight 13, shown as of spherical form, but which may be of any suitable form or character, is mounted on the lower end of the shaft in spaced relation to the hook 3, as shown.

To operate the toy as an aerial projectile, I provide a suitable device, illustrated particularly in Figs. 4 and 5 comprising an elastic member 15 connected in any suitable manner at 16 to a handle member 17, provided at its inner end with a slot 18. Any other form of projecting device may be employed, and it will be understood that if desired, the toy may be thrown into the air by hand.

When it is desired to project the toy into the air by means of the projecting device illustrated, the hook 3 of the shaft 1 is engaged in the free end of the elastic member 15 and the toy held in one hand by the operator who grasps the handle member 17 with his other hand, stretching the elastic member 15, and upon releasing his grasp upon the toy, the toy will be shot into the air somewhat after the fashion of a bean-shooter.

When the toy has reached the limit of its upward flight the weight 13 tends to bring the toy into a vertical position and the action of the air on the vanes 4 will cause these vanes to open outwardly as illustrated in full lines in Fig. 2, causing the shaft to rotate under the rotating influence of the vanes, spinning the toy as it descends under the influence of the weight 13. The weight 13 provides the necessary balance so that the toy will descend in a substantially vertical plane, as stated. The propeller rotates independently of rotation of the vanes, the propeller being loosely mounted on the shaft 1, as stated, and can be dispensed with if desired.

When it is desired to use the toy as a windmill and not project it into the air, as before stated, it is simply necessary to slip the slotted end 18 of the handle over the sleeve 11 and the toy will be firmly held in the handle, as shown in Fig. 5. The operator may then hold the handle and by moving the toy through the air, the vanes will assume their open position and the spinning action of the vanes and shaft will take place. The propeller, if used, will rotate independently of the vanes under the influence of the air currents. The handle may be held stationary and allow the air currents to impinge against the vanes, if the air currents are strong enough, thereby creating the spinning action of the vanes.

From the foregoing it will be seen that I provide a simple, inexpensive and attractive toy which may be projected into the air to spin and give a pleasing effect on downward descent or which may be held by the operator after the fashion of a windmill operation, it being understood that the propeller and vanes may be differently colored or variegated colors applied to various parts, if desired, to render the toy even more attractive than if composed of a solid color.

What is claimed is:—

1. A toy comprising a shaft, resilient vanes positioned at one end of said shaft, a propeller on said shaft adjacent the inner ends of said vanes, means on said shaft for maintaining said propeller in proximity to said vanes, and a weight at the other end of the shaft.

2. A toy of the character described comprising a shaft, normally contiguous resilient vanes at one end of the shaft, and a weight at the other end of the shaft, the uppermost outer ends of said vanes being flanged, and the shaft terminating in a hook adjacent to said weight.

3. A toy comprising a shaft, a sleeve loosely mounted on the shaft and located at the upper portion thereof, a pair of resilient vanes connected to the shaft in spaced relation to the sleeve and extending longitudinally from the shaft and adapted to open outwardly by rotation incident to an air current, a propeller mounted on the shaft between the sleeve and the vanes and having blades arranged at substantially right angles to the shaft, and a handle member having a slot at one end adapted to receive said sleeve.

4. A toy of the character described, comprising a shaft cross-shaped at one end, a pair of resilient vanes formed of a single strip of material bent intermediate its ends and provided at the bight portion with an opening, said opening embracing said shaft, and the bight portion of the vanes engaging the cross-shaped end of said shaft, means to secure the vanes to the cross-shaped end of the shaft, and a weight at the other end of said shaft.

5. An aerial toy including a pair of normally contiguous resilient vanes normally flat and connected at their inner ends and overlapping, said vanes diverging laterally and having their outer portions laterally off-

set with respect to each other to expose a portion of the inner face of each vane, whereby the vanes in the flight of the toy will be caused to rotate and spread.

6. An aerial toy including a pair of normally contiguous flat resilient vanes connected at their inner ends and overlapping, the uppermost outer ends of the said vanes having flanges located at opposite sides of the toy and adapted to cause the vanes in the flight of the toy to rotate and spread.

In testimony whereof I have hereunto set my hand, this 9 day of December, 1929.

FLOYD WORDEN.