

Feb. 5, 1924.

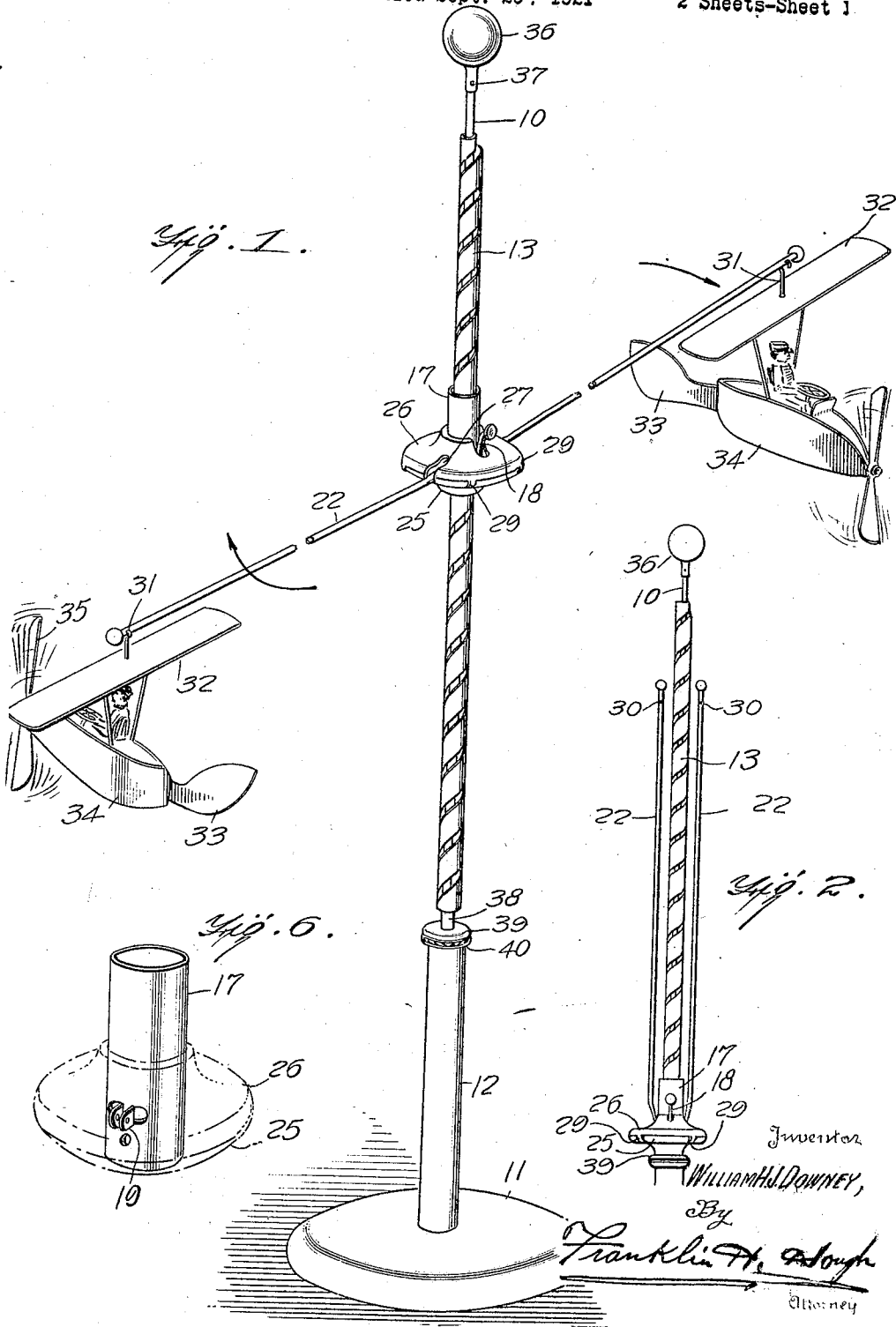
W. H. J. DOWNEY

1,482,976

TOY

Filed Sept. 29, 1921

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

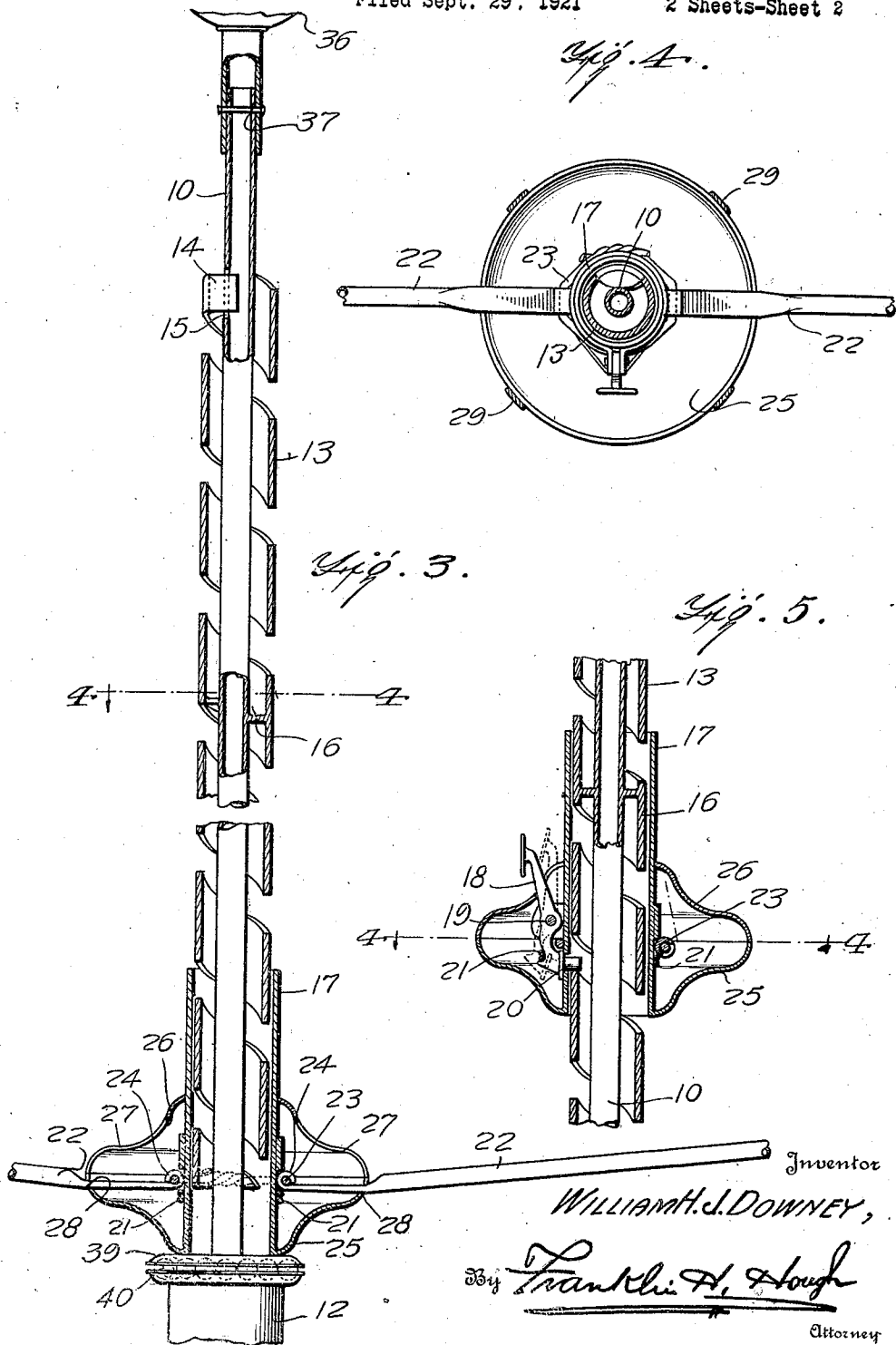


Fig. 1.

Fig. 3.

Fig. 5.

Inventor
WILLIAM H. J. DOWNEY,
By *Franklin H. Hough*
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM H. J. DOWNEY, OF WILMINGTON, DELAWARE.

TOY.

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To all whom it may concern:

Be it known that I, WILLIAM H. J. DOWNEY, a citizen of the United States, residing at Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Toys, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to toys and has for an object to provide a toy of the general roundabout class having improved gravity means for establishing and maintaining the roundabout motion.

A further object of the invention is to provide a roundabout toy having a mast including a spiral with means for moving downwardly and spirally about the mast, carrying arms to which are attached movable and moving members.

A further object of the invention is to provide means for continuing and maintaining the rotary action of the arms after the descending member has passed from engagement with the spiral.

With these and other objects in view the invention comprises certain novel parts, elements, units, combinations, arrangements, mechanical movements and functions, as disclosed in the drawings, together with mechanical equivalents thereof, as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a perspective view of the device shown in operative position;

Figure 2 is a view of the device in side elevation, shown in folded position.

Figure 3 is a view in diametrical vertical section through the spiral and showing the mast partly in side elevation and partly in section;

Figure 4 is a transverse sectional view through the device taken on line 4-4 of Figure 3;

Figure 5 is a vertical diametrical sectional view taken on a line at right angles to Figure 3, and

Figure 6 is a perspective view of the hub with the hub casing removed.

Like characters of reference indicate corresponding parts throughout the several views.

The improved toy which forms the subject matter of this application comprises a

mast 10 supported upon a foot 11, the form of the foot being immaterial, one form, that of a plane disk, being shown at Figure 1. Preferably, also an upright 12 connects the foot 11 with the mast 10, although such upright is immaterial to the proper functioning of the device.

About the mast 10 a spiral 13 is secured taking the form of a tube concentric with the mast having a spiral slot therein, although in the actual manufacture of the device the construction will probably be that of rolling a flat strip of metal about a cylindrical core. The spiral 13 is secured to and spaced concentrically from the mast 10 in any approved manner, as by inserting the upper end 14 in a slot 15 in the mast and providing spacers 16 at intervals along its length.

These spacers 16 are similar to a split and distorted washer leaving the slot between the convolutions of the spiral 13 always unobstructed.

About the spiral 13 a hub 17 is mounted having a lever 18 fulcrumed thereon at 19 with a finger 20 inserted through the hub and proportioned to engage in the slot of the spiral 13, as indicated more particularly at Figure 5, a spring 21 being provided for holding the lever yieldingly in operative position, as shown in full lines in such figure, but permitting the manual movement of the same to the dotted line position facilitating engagement with the spiral and permitting the movement of the hub freely upwardly and downwardly upon the spiral.

Carried also by the hub are radial arms 22 hinged, as shown more particularly at Figure 3, by means of a wire 23 about said hub and through eyes 24 in the inner ends of the arms 22.

A housing comprising the sections 25 and 26 encloses that part of the hub to which the arms 22 are pivoted, having slots 27 which permit the movement of the arms 22 upon their pivots to folded position shown at Figure 2 and forms stops 28 (see Figure 3) to hold the arms 22 approximately in horizontal alinement. The two parts 25 and 26 are preferably separable and are held together by means of spring fingers 29, although it is apparent that any means of holding the sections united will serve the purpose.

The arms 22 are preferably provided adjacent their outer extremities with perfora-

tions 30 proportioned to be engaged by hooks 31 suspending preferably miniature representations of aeroplanes. Such aeroplanes are indicated by the wings 32, rudder 5 33 and fuselage 34. To the forward end of the fuselage, tractor propellers 35 are journaled in such manner and such position that as the arms rotate in the direction indicated by the arrow at Figure 1 the propellers 35 will be engaged by the air and rotated to simulate the rotation of tractor propellers of aeroplanes.

The top of the mast 10 is preferably provided with a stop 36 of any ornamental 15 form, a ball being shown in the drawings for that purpose, which is removable and replaceable by means of the pin 37 to permit the removal of the hub 17 when required, but to prevent the accidental displacement there- 20 of in ordinary use.

Below the lower end of the spiral 13 an interval 38 is provided of such dimension that the nose 20 of the lever 18 will pass below the lower end of this spiral and after 25 passing the end of the spiral no longer interferes with the free rotation of the arms 22 and the devices carried thereby. A disk 39 surrounds the mast 10 at this point and is carried upon ball bearings, as indicated at 30 40 so that when the hub 17 moves downwardly to release the nose 20 from the spiral the momentum of the rotating parts will meet with but little resistance to continued rotation and will continue to rotate until the 35 friction of the air and the very slight friction of the mechanical parts overcomes such momentum. When the parts have finally come to rest, the lever 18 is moved to the dotted line position as shown at Figure 5, 40 the hub and associated parts moved upwardly along the spiral 13 to the top or so far as may be desired, the lever 18 released, whereupon the nose 20 will again engage the spiral and gravity will cause the parts to 45 rotate about the mast as it moves downwardly.

For packing, storing and shipping, the devices shown in Figure 1 as aeroplanes are removed from the arms by unhooking at 31 50 and the arms 22 moved upon their pivots upwardly beside the mast, as shown at Figure 2, whereby space is economized.

While the several mechanical parts and the devices carried thereby have been shown 55 in detail and particular, it is to be understood that each and every one may be varied considerably within the scope of this invention and the claims forming a part hereof.

What I claim is:

1. A toy comprising a vertical mast, a 60 helical guide extending approximately the length of the mast but stopping short at the upper and lower ends, a hub slidable upon the mast, manually-operable means carried 65 by the hub for engaging the helical guide and so positioned as to escape the guide at the lower end where the helical guide is interrupted, an anti-friction member disposed to receive and support the hub after escap- 70 ing the helical guide, radial arms carried by the hub, and devices carried adjacent the extremities of the radial arms.

2. A toy comprising a vertical mast, a helical guide surrounding the mast and extending approximately the length of the 75 mast but stopping short of the end thereof, a hub mounted to slide upon the mast, manual means carried by the hub for engaging the helical guide and proportioned to escape 80 the guide at the lower end of the mast, an anti-friction disk surrounding the mast at the lower end and positioned to receive and support the hub, arms extending radially from the hub, devices suspended beneath the 85 outer ends of the arms, and means carried by the devices to be engaged and operated by the air.

3. A toy comprising a helical guide having a normally vertical axis, a hub rotatable 90 on the guide, a finger carried by the hub extending into the volutions of the helix, outwardly extending arms carried by the hub, means facilitating the folding of said arms relative to said hub and into juxtaposition 95 with said guide, and parts extending beyond the helix, maintaining said hub in rotatable condition.

4. A toy comprising a helical guide having a normally vertical axis, a hub rotatable 100 on the guide, a finger carried by the hub extending into the volutions of the helix, outwardly extending arms carried by the hub, means facilitating the folding of said arms relative to said hub and into juxtaposition 105 with said guide, parts of said hub proportioned to extend beyond the helix to maintain said hub in rotatable condition, and means at the lower end of said guide to support and facilitate the rotation of said hub.

In testimony whereof I hereunto affix my 110 signature in presence of two witnesses.

WILLIAM H. J. DOWNEY.

Witnesses:

HARRY B. STEADLEY,
MARY E. HANEY.