

No. 693,297.

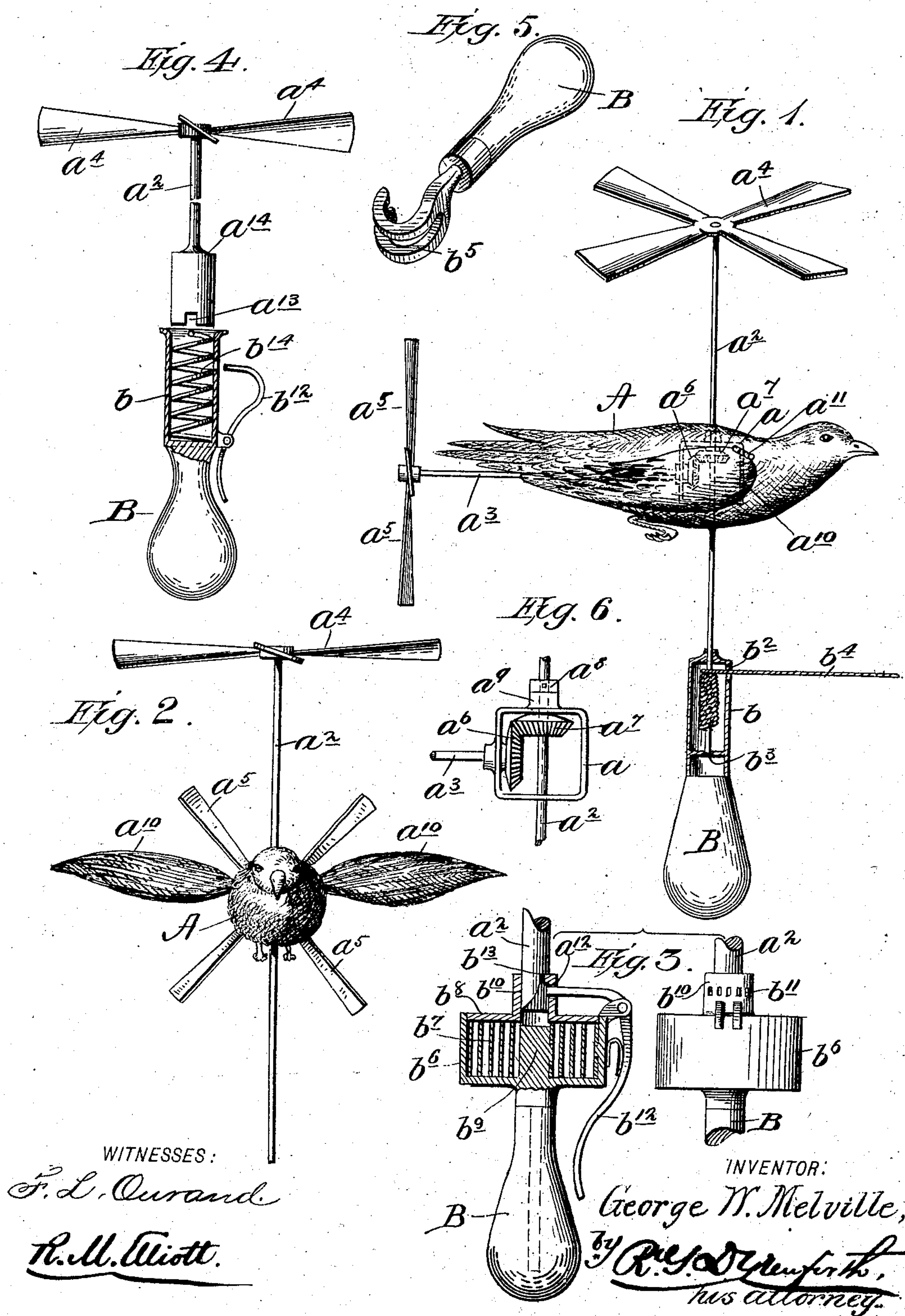
Patented Feb. 11, 1902.

G. W. MELVILLE.

AERIAL TOY.

(Application filed Aug. 24, 1899.)

(No Model.)





# UNITED STATES PATENT OFFICE.

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## AERIAL TOY.

SPECIFICATION forming part of Letters Patent No. 693,297, dated February 11, 1902.

Application filed August 24, 1899. Serial No. 728,341. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. MELVILLE, of the United States Navy, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Aerial Toys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object is to present a cheaply-constructed, durable, and at once attractive device in the nature of a flying object, the object to be in representation of a bird, a bat, or any other flying animal or insect.

The invention consists generally in the provision of a simple and positively-acting combined ascensional and projectile mechanism by which an object may be made to ascend and to be propelled in a substantially horizontal plane, and, further, if desired, in the provision of means to act adjunctively with the projectile mechanism to aid in giving direction to the object while in flight and when the ascensional force of power is spent to operate adjunctively with the ascensional mechanism to retard and thus to minimize the descensional force of the object, thereby not only to break the fall of the object, but also to prolong the time in which the object remains in flight.

The invention consists, specifically, in the novel construction and combination of parts of a flying toy, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate corresponding parts, I have illustrated a form of embodiment of my invention, together with several forms of actuating mechanism therefor, it being understood that other forms of embodiment both of the device and its actuating mechanism may be employed without departing from the spirit of the invention, and in these drawings—

Figure 1 is a view in perspective elevation, displaying a flying object, in this instance the representation of a bird, together with the actuating mechanism therefor, the object being shown as ready to be projected. Fig. 2 is a view in front elevation, displaying the ob-

ject as it appears when descending. Figs. 3 and 4 are detail views, partly in section, displaying different forms of mechanism that may be employed for spinning up or imparting mechanical motion to the operative mechanism of the object. Fig. 5 is a perspective detail view of a device for holding the object to be projected that may be employed in lieu of the devices shown in Figs. 3 and 4. Fig. 6 is a detail view of the driving mechanism.

Referring to the drawings, A designates the body of the flying object, in this instance a bird, which body may be made of any substance suited to the purpose and possessing the requisite strength and likeness—as, for instance, of very thin rolled sheet metal stamped or otherwise formed to the required shape, of prepared papier-mâché, of compressed paper or wood pulp, or even of ordinary paper suitably sized or stiffened. The body will of course be formed in sections and in being assembled may, when the sections are of metal, be held together by rivets, by overlapped seams, or by solder. When the body is of papier-mâché, of pulp, or of ordinary paper, the sections may be held together by glue or by any suitable adhesive. Within the body is secured a frame  $a$ , preferably rectangular in shape, and supported partly by this frame and partly by the body of the object are two shafts  $a^2 a^3$ , the former of which carries the ascensional propeller  $a^4$  and the latter the projectile-propeller  $a^5$ . The two shafts are mechanically connected by miter-gears  $a^6 a^7$ , keyed or otherwise secured to their respective shafts, and in order to prevent undue frictional contact between the two gears the shaft  $a^2$  is provided with a collar  $a^8$ , which bears upon a boss  $a^9$  on the top member of the frame  $a$ , as shown in Fig. 6, and thereby holds the two gears in easy mesh.

The body of the object may be provided with wings  $a^{10}$ , secured to the body by hinges  $a^{11}$ , these wings when the body is ascending to remain closed against the body, as shown in Fig. 1, thus to obviate the presentation of an obstruction to free upward flight, but when the object begins to descend to open out, as shown in Fig. 2, and to act adjunctively with the propeller  $a^4$  to retard descent of the object.

The rotation of the shaft  $a^2$  may be effected either manually or mechanically. In Fig. 1



the simplest form of motion-imparting mechanism is shown. This consists of a handle B, carrying a hollow thimble  $b$ , provided with a lateral slot or opening  $b^2$  and a seat  $b^3$ . To  
 5 impart motion to the shaft with this form of device, a cord  $b^4$  is wound upon that portion of the shaft within the spindle, the lower end of the shaft resting on the seat  $b^3$ , as shown in Fig. 1. By holding the handle in a ver-  
 10 tical position and quickly drawing out the cord the shaft will be rapidly spun and the two propellers will at once be actuated to lift and to project the object.

In lieu of the device shown in Fig. 1 that  
 15 shown in Fig. 5 may be employed in manually actuating the shaft. This second form of device consists of a handle B, provided with a bifurcated hook  $b^5$ , between the members of which the cord  $b^4$  will pass. The op-  
 20 eration of this form of device is the same as that shown in Fig. 1, except that the handle is to be held in a horizontal position.

In Fig. 3 a mechanical motion-imparting device is shown. This consists of a handle  
 25 B, carrying a casing  $b^6$ , in which is housed an ordinary clock-spring  $b^7$ , the cap  $b^8$  of the casing being loosely mounted therein and having one end of the spring secured thereto, the other end of which is secured to a boss  $b^9$ ,  
 30 projecting from the bottom of the casing. The cap is formed with a hollow boss  $b^{10}$ , provided with a plurality of openings  $b^{11}$  to be engaged by the end of a trigger  $b^{12}$ , carried by the casing. The lower end of the shaft  $a^2$   
 35 is provided with a slot having a cam-surface  $a^{12}$ , the wall of the slot being engaged by a projection  $b^{13}$ , extending inward from the boss  $b^{10}$ . When the spring  $b^7$  is to be placed under tension, the lower end of the shaft  $a^2$  is in-  
 40 serted in the boss, as shown in Fig. 3, with the projection  $b^{13}$  in engagement with the wall of the cam-slot  $b^{12}$ . The shaft is then rotated by the hand or otherwise, thus turning the cap  $b^8$ , and thereby winding up the spring.  
 45 When under sufficient tension the trigger is brought into engagement with one of the openings  $b^{11}$ , thus holding the spring from unwinding. Upon release of the trigger the spring will rapidly unwind and spin up the  
 50 shaft  $a^2$ , the projection  $b^{13}$ , by riding down

the cam-surface  $a^{12}$ , operating automatically to free the shaft from the boss and thus release the object.

In Fig. 4 I show another form of mechanical motion-imparting device, wherein a simple  
 55 coiled spring  $b^{14}$  is employed, the upper coil of which is to be engaged by the lower end of the shaft  $a^2$ , which latter is provided with a slot  $a^{13}$  for the purpose. When the spring is wound up, it is depressed and gradually sinks  
 60 into the thimble  $b$  at the upper end of the handle B, and thus permits the trigger  $b^{12}$  to be brought into engagement with a shoulder  $a^{14}$ , provided on the shaft for the purpose. The operation of this form of device is the  
 65 same as that shown in Fig. 3.

In order to present proper counterpoise for the object, the shaft  $a^2$  is extended below the body of the object, as shown in Figs. 1 and 2, or may be weighted, as shown in Fig. 4.  
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Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A flying toy provided with interiorly-disposed gearing adapted to operate ascen-  
 75 sional and projectile propellers, means for communicating motion to such gearing, and means adapted to remain inoperative during ascension, but to automatically operate dur-  
 80 ing descent to retard the fall of the object, substantially as described.

2. A flying toy in form to represent a bird, and provided with wings adapted, when the toy ascends, to lie against the sides of the body portion of the toy, and when the toy  
 85 descends, to open out and thus retard descent, a frame secured within the body, shafts journaled in the frame and arranged at right angles to each other, each shaft carrying a miter-gear, the two to intermesh, an ascen-  
 90 sional propeller carried by one of the shafts, and a projectile-propeller carried by the other shaft, substantially as described.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.  
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GEORGE W. MELVILLE.

Witnesses:

WM. J. MURTAGH,  
 R. M. ELLIOTT.