

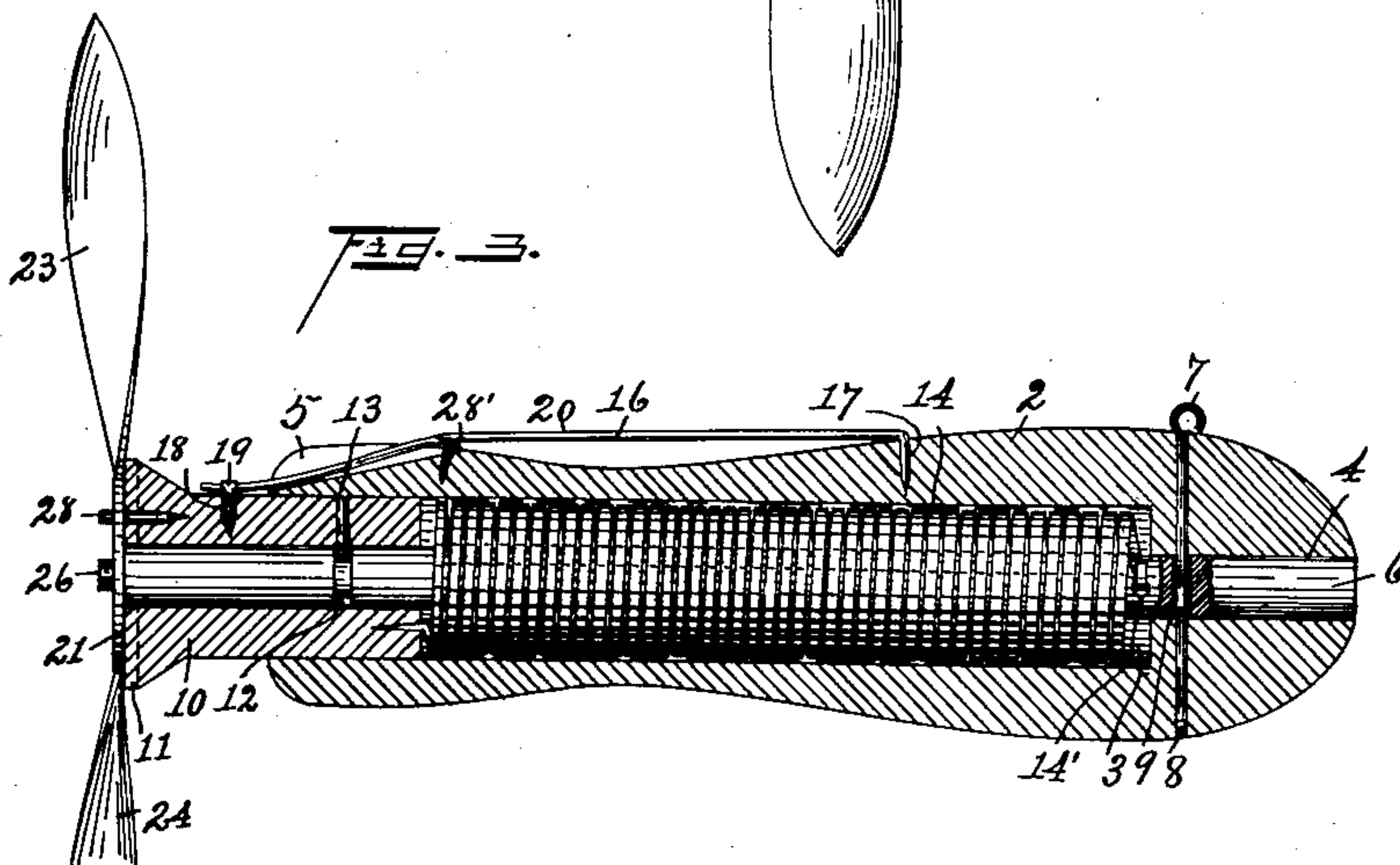
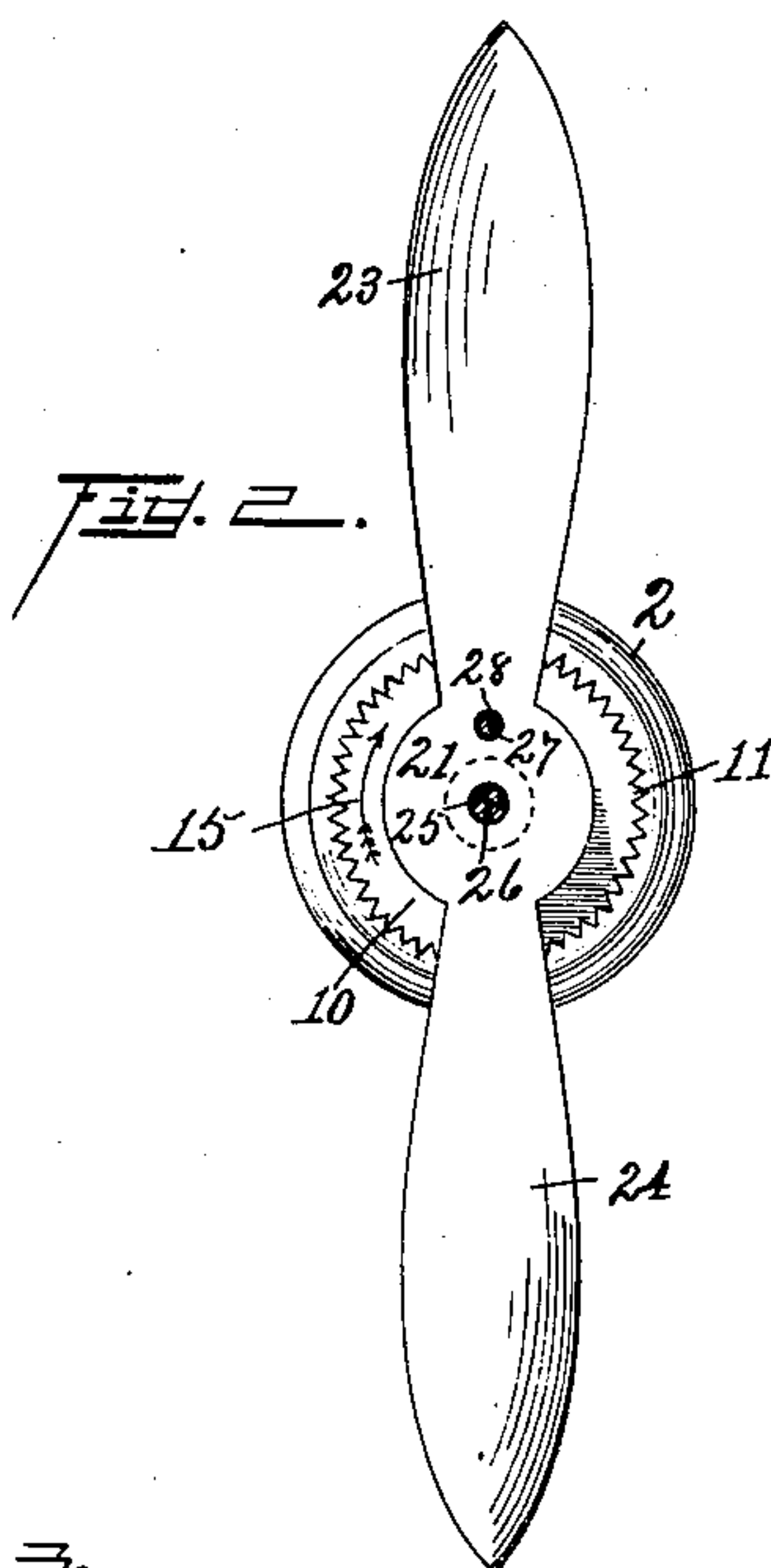
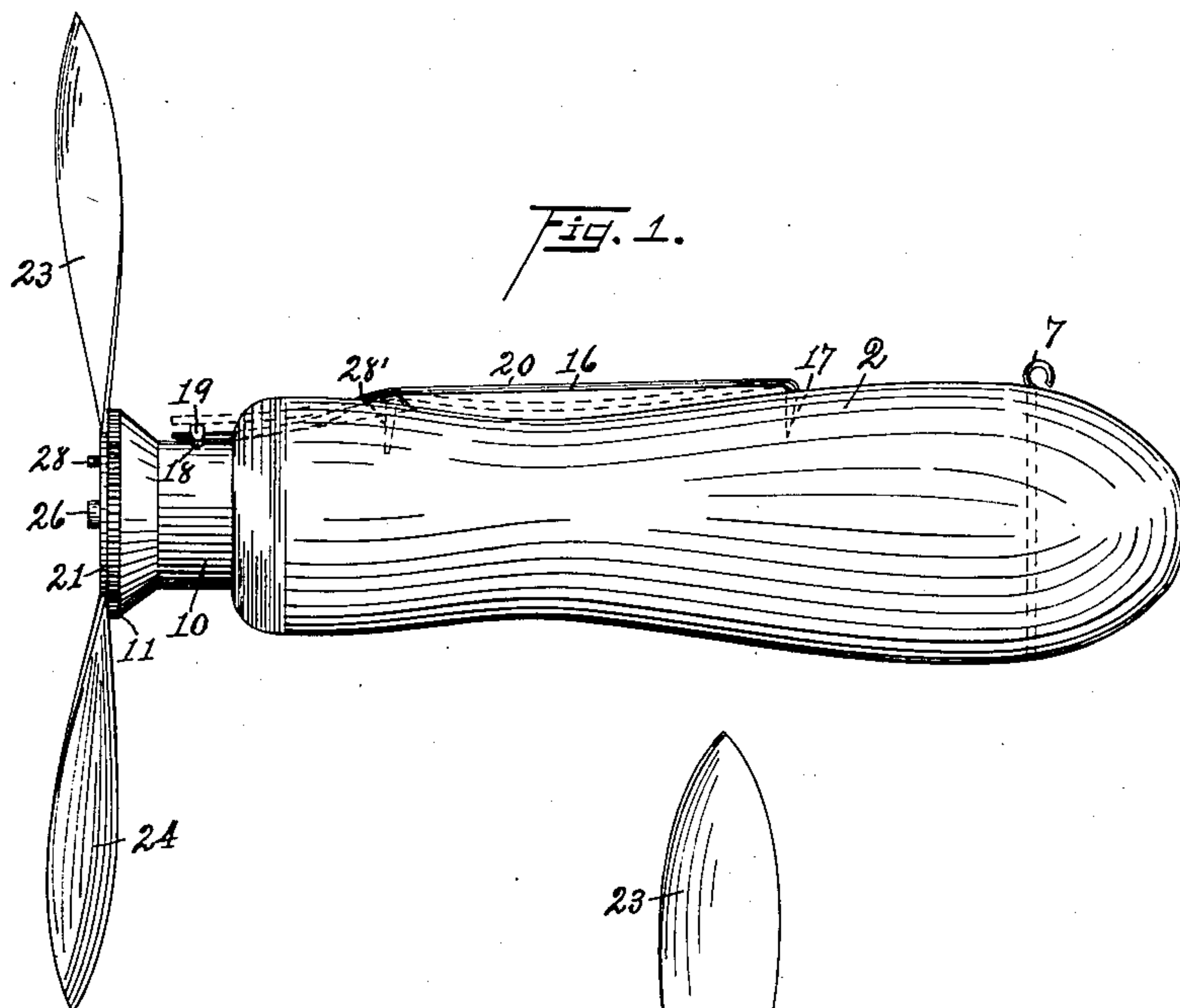
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FLYING TOY.

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962,743.

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# UNITED STATES PATENT OFFICE.

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## FLYING TOY.

962,743.

Specification of Letters Patent. Patented June 28, 1910.

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*To all whom it may concern:*

Be it known that I, WILLIAM C. CAPEWELL, a citizen of the United States, and a resident of Hotchkissville, in the county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Flying Toys, which improvements are fully set forth in the following specification.

This invention relates to improvements in devices of that class whereby winged projectiles are caused, under suitable rotary action imparted thereto and for purposes of amusement, to move bodily upward in the atmosphere and thereafter descend, each by its own gravity, such devices being commonly known as flying toys.

The object of this invention is to provide a device of the character above indicated, which shall be simple and inexpensive as regards construction; durable, efficient and reliable in practical service; convenient in its application to practical purposes; and which shall possess certain well-defined advantages over prior analogous devices.

The invention consists in certain novel details, combinations and parts whereby, together with the novel disposition and relative arrangement of said parts, the attainment of the foregoing object is rendered practicable, all of which will be hereinafter more specifically referred to and set forth in the appended claims.

The invention is clearly illustrated in the accompanying drawings, wherein similar reference-numerals denote like parts throughout the respective views, as to which:

Figure 1 is a side elevation of a flying toy embodying my said improvements. Fig. 2 is a front end view of the same; and Fig. 3 is a view similar to Fig. 1, the major portion of the device being shown in central, vertical, longitudinal section.

In a general sense my present invention comprises a hollow body adapted to be held in the hand of the user, and provided with a spindle fixed axially therein; a projectile saddle rotarily attached to said spindle; means for sharply imparting a rotary movement to said saddle; and means for temporarily checking said saddle against such rotary action.

It further comprises, in addition to the parts and features aforementioned, a winged projectile, so seated on said saddle as to be free to move bodily away therefrom, while

at the same time being held thereto for temporary, rotary movement therewith.

In carrying out my invention, reference being had to the accompanying drawings, I provide a body 2, of wood or other suitable material, having an exterior configuration suitable to permit of its being gripped by the hand of the user, and having a major bore 3, merging into a reduced or minor bore 4. The body 2 is further provided, at its forward end, with a longitudinal kerf 5, the function of which will be explained hereinafter.

6 denotes a spindle whose rear portion nicely occupies the minor bore 4, while the remaining portion thereof projects forwardly and centrally along the major bore 3. This spindle is held against both longitudinal and rotary movement with respect to the body 2, by means of a locking-pin 7, inserted into the opening 8, formed transversely through the body 2, and projecting through said spindle by way of an opening 9, formed transversely therethrough, this arrangement of the parts being permissible when the openings 8 and 9 are brought into registry, as will be readily understood. The spindle 6 carries at its front end a projectile saddle 10, of wood or other suitable material, the same, by preference, having at its front end a lateral, annular flange 11, the periphery of which is roughened or notched, as indicated more clearly in Fig. 2.

It is desirable that means be availed of whereby the saddle 10 may be free to undergo a rotary action with respect to the spindle 6, while being held against longitudinal displacement therealong; and to this end I provide the spindle 6 with an annular recess 12, into which projects the inner end of a key 13, as clearly shown in Fig. 3.

Within the major bore 3, and encircling the spindle 6, I dispose a spiral spring 14, the rear end of which has a fixed relation with respect to the spindle 6, which may be attained in any common and well known manner, as by passing a portion of the rear coil of said spring through a suitable opening 14', formed transversely through said spindle, and bending over the free end thereof; and the front end of said spring has a fixed relation with respect to the saddle 10, which may be likewise attained in any common and well known manner, as



by turning forwardly the free end portion of the front coil of said spring, giving the same substantially the form of a pointed pin, and forcing it into said saddle, all as clearly indicated in Fig. 3.

With the construction thus far described the user, grasping the body 2 with one hand and the roughened flange of the saddle 10 with his thumb and one or more fingers of his other hand, may turn said saddle, as in the direction indicated by the arrow 15, (Fig. 2), and accordingly contract the spring 14 with the result of imparting stress to the latter. Under this condition of the parts, said spring exerts on the saddle aforementioned, a rotary stress adapted, upon said saddle being freed from the grasp of the user, to return the same, decisively and sharply, to its normal position, or that position of the parts in which said spring exerts little or no effect whatever on said saddle.

For the purpose of holding the saddle 10 under stress from the spring 14, as above described, I provide a controller 16, here shown as taking the form of a length of suitable spring-wire, the same being turned at its rear portion to form a lateral pin 17, which is duly pointed and driven or forced into the body 2, while the forward portion thereof is turned somewhat inwardly, toward the longitudinal axis of the device as a whole, freely occupies the kerf 5 aforementioned, and terminates in fairly close proximity to the saddle 10, at the rear of the flange 11 thereof.

18 denotes a stop, here shown in the form of a pin, driven or forced into the saddle 10, and projecting therefrom somewhat. The stop 18 is beveled at one side, as indicated by the numeral 19; and once in each turn of the saddle 10, in the direction indicated by the arrow 15, said stop, by reason of its beveled face 19, engages and lifts the free end of the controller 16, and passes on, as the saddle 10 is repeatedly turned to impart stress to the spring 14: but, under a return movement of said saddle, the stop 18, whose opposite side is not beveled, engages the free end of the controller aforementioned without lifting it, and hence locks the saddle 10 against a further return movement, and the spring 14 under stress. When it is desired to liberate the parts from this locked condition, it is only necessary to exert a suitable pressure, as by the thumb of the user, inwardly against the controller 16, as at the point 20, which pressure will cause said controller to assume approximately the position indicated in dotted lines in Fig. 1. As will be noted, in this position of the controller, its free end is raised sufficiently to escape the stop 18. The kerf 5 hence serves to keep the forward portion of the controller 16 in its proper position relatively to the stop 18, preventing, as it does, any

tendency to undue lateral deflection thereof, as under pressure exerted by said stop in the practical operation of the device.

21 denotes a projectile, preferably of thin sheet-metal, the same comprising a body 22 from which radiate a plurality of wings, as 23, 24, the latter being relatively turned or twisted sidewise in a manner to act on the atmosphere after the order of a screw or propeller, when duly subjected to a rotary movement, as through the medium of the saddle 10 and spring 14.

It is essential that means be employed whereby the aerial projectile 21 may be temporarily seated on the saddle 10 so as to momentarily turn therewith and thereafter move away therefrom upwardly into the atmosphere; and to this end I provide said projectile with a central orifice 25, adapted to freely receive the fixed, semi-neutral, centering arbor 26, provided by reducing to the form of a tip, the free end of the spindle 6, and projecting somewhat forwardly of the saddle 10, when the latter is in position on said spindle. The arbor 26 serves, primarily, as a medium for determining the proper position of the projectile aforementioned with respect to the saddle 10, and, secondarily, as an axial medium on which said projectile may momentarily turn, the same being fixed, since the spindle 6 does not turn, and being semi-neutral in the sense that, while the projectile momentarily turns thereon, it, alone, is incapable of transmitting any turning effect whatever thereto. Now, in order that the saddle 10 may, under stress received from the spring 14, transmit its rotary action to said projectile, and hence turn the latter momentarily on the arbor 26, I provide said projectile with an additional orifice 27, adapted to freely receive a headless commander pin 28, which is driven or forced into the front face of the saddle 10, parallel with and removed somewhat radially from, the arbor 26, and so that a portion thereof shall project somewhat forwardly from said saddle, and freely enter the orifice 27, when the parts are assembled for service, as illustrated in the drawings. Hence, the body 2 being held with its front end pointing upwardly, the projectile 21 duly seated on the saddle 10, and the latter placed under stress from the spring 14, saddle 10 may be liberated by duly manipulating the controller 16, as hereinbefore described; and thereupon said projectile, properly faced upwardly, will chiefly through the action of the commander pin 28, move away from the saddle 10 and upwardly into the atmosphere to a considerable height.

The orifices 25 and 27 preferably vary in the matter of diameter, in order to facilitate the seating of the projectile 21 on the saddle 10, the diameters of the arbor 26 and pin 28 being each varied accordingly.

When the controller 16 is formed from



wire, as herein stated, its operation will be facilitated by providing a fulcrum therefor at the rear terminus of the kerf 5; and in this connection I purpose to make use of a small headed pin 28', driven or forced into the body 2, at the point specified, and as clearly indicated in the drawings.

The operation of the device will be apparent from the foregoing description thereof.

It will be seen that my improved flying toy is well adapted for the purposes for which it is intended, and further that the same may be modified to some extent, particularly as regards the specific form of the saddle 10, and of the aerial projectile made use of, and also as regards certain minor details of the general construction, without materially departing from the spirit and principle of my invention.

I claim:

1. A flying toy comprising a hollow body adapted to be grasped by the hand of the user; a spindle fixed axially therein; a projectile saddle mounted to rotate on said fixed spindle, near its free end, and held against displacement longitudinally therealong, the free end of said spindle constituting a fixed, semi-neutral, centering arbor, projecting somewhat forwardly of the saddle aforementioned, and the latter, said saddle, having a commander pin arranged parallel with said arbor and removed somewhat radially therefrom; means for exerting a rotary stress in one direction on said saddle; and an aerial projectile, the latter having a central orifice for the reception of said arbor, and an additional orifice for the reception of said commander pin, when the projectile is seated on said saddle.

2. In a device of the class described, in combination, a hollow, elongated body; a spindle fixed axially therein; a projectile saddle mounted to rotate on said fixed spindle, near its free end, held against displacement longitudinally therealong, and having a lateral stop; a spiral spring encircling said spindle, within the body aforementioned, and adapted to exert, when under tension, a rotary stress in one direction on said saddle, to cause the same to sharply turn on said fixed spindle; and a controller, the latter formed wholly from spring-wire, attached to said body, and cooperating with said lateral stop for temporarily holding the saddle aforementioned against the tendency of said spring, when under tension.

3. In a device of the class herein described, in combination, a hollow, elongated body, having a longitudinal kerf at its forward end and a fulcrum at the rear end of said kerf; a spindle fixed axially within said body; a projectile saddle mounted to

rotate on said fixed spindle, near its free end, held against displacement longitudinally therealong, and having a lateral, beveled stop; a spiral spring encircling said spindle, within the body aforementioned, and adapted to exert, when under tension, a rotary stress in one direction on said saddle, to cause the same to sharply turn on said fixed spindle; and a controller, the latter formed wholly from wire of suitable resiliency, attached at one of its ends to said body, projecting forwardly therealong, engaging said fulcrum, occupying and traversing said kerf, and having its free end arranged to normally intersect the path of movement of the lateral stop aforementioned.

4. In a device of the class herein described, in combination, a spindle; a projectile saddle mounted to rotate thereon, near its free end; a resilient connection between said spindle and said saddle, and whereby, when under tension, a rotary stress in one direction is exerted on said saddle; and means for temporarily holding said saddle against the tendency of said resilient connection, when under tension, the free end of said spindle constituting a fixed, semi-neutral, centering arbor, projecting somewhat forwardly of the saddle aforementioned, and the latter, said saddle, having a commander pin arranged parallel with said arbor and removed somewhat radially therefrom.

5. In a device of the class herein described, in combination, a spindle; a spring-controlled saddle, mounted to rotate on said spindle, near one end thereof; and a fixed, semi-neutral, arbor, arranged axially with respect to said spindle, and projecting somewhat forwardly of said saddle, the latter being provided with a commander pin, arranged parallel with the arbor aforementioned, and removed somewhat radially therefrom.

6. In a device of the class herein described, in combination, a spindle, having an annular recess; a saddle mounted on said spindle, near one end thereof, said saddle being provided with a key whose inner end projects freely into the annular recess aforementioned, and whereby said saddle is held against longitudinal displacement along said spindle, while being free to rotate thereon; a resilient connection between said spindle and said saddle, said connection being adapted, when under tension, to impart a rotary stress in one direction to the latter; and means for temporarily holding said saddle against the tendency of said resilient connection, when under tension.

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