Jan. 5, 1932. W. J. BUCHANAN 1,840,152

FLYING MACHINE

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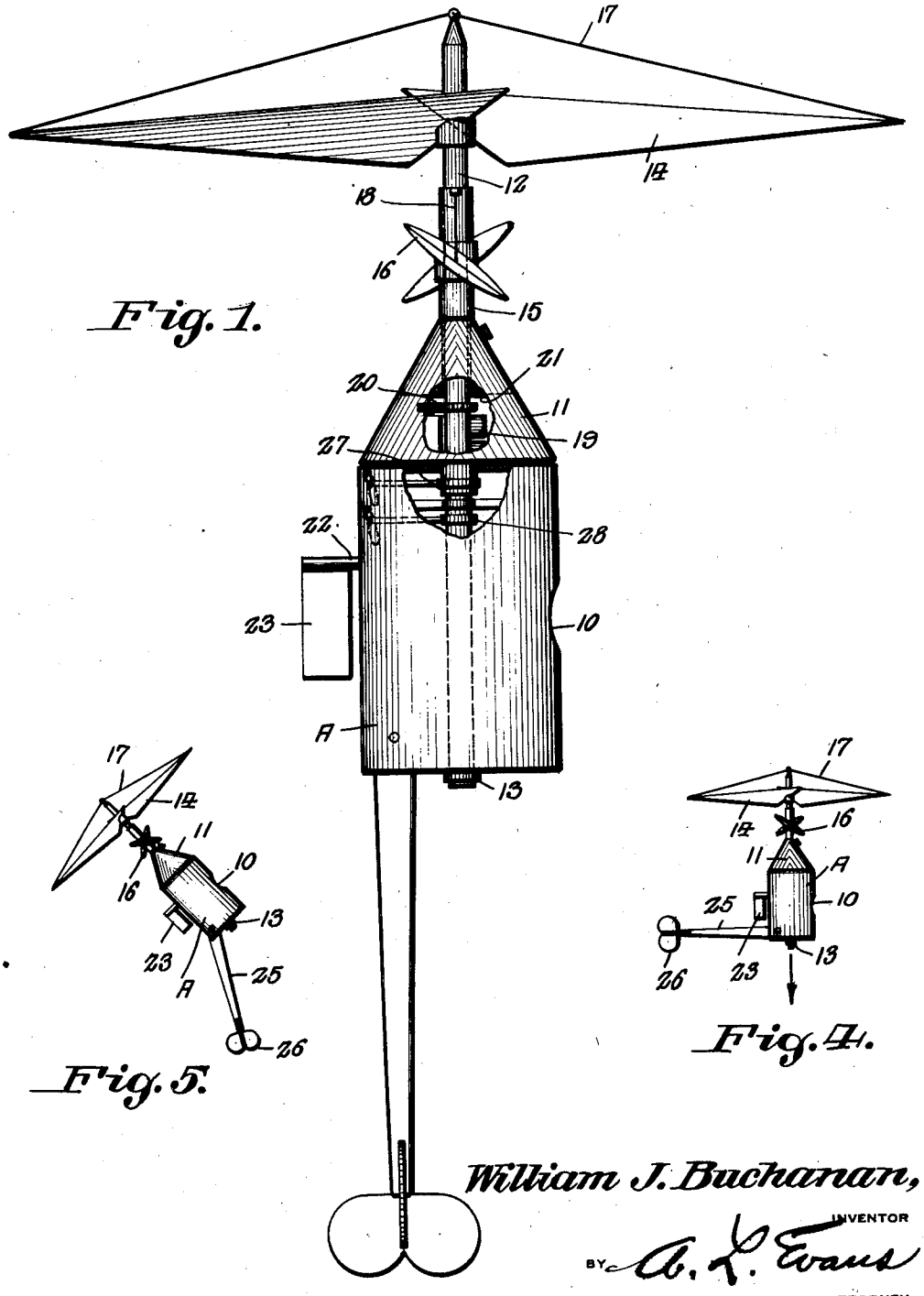


Fig. 1.

Fig. 5.

Fig. 4.

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Fig. 2.

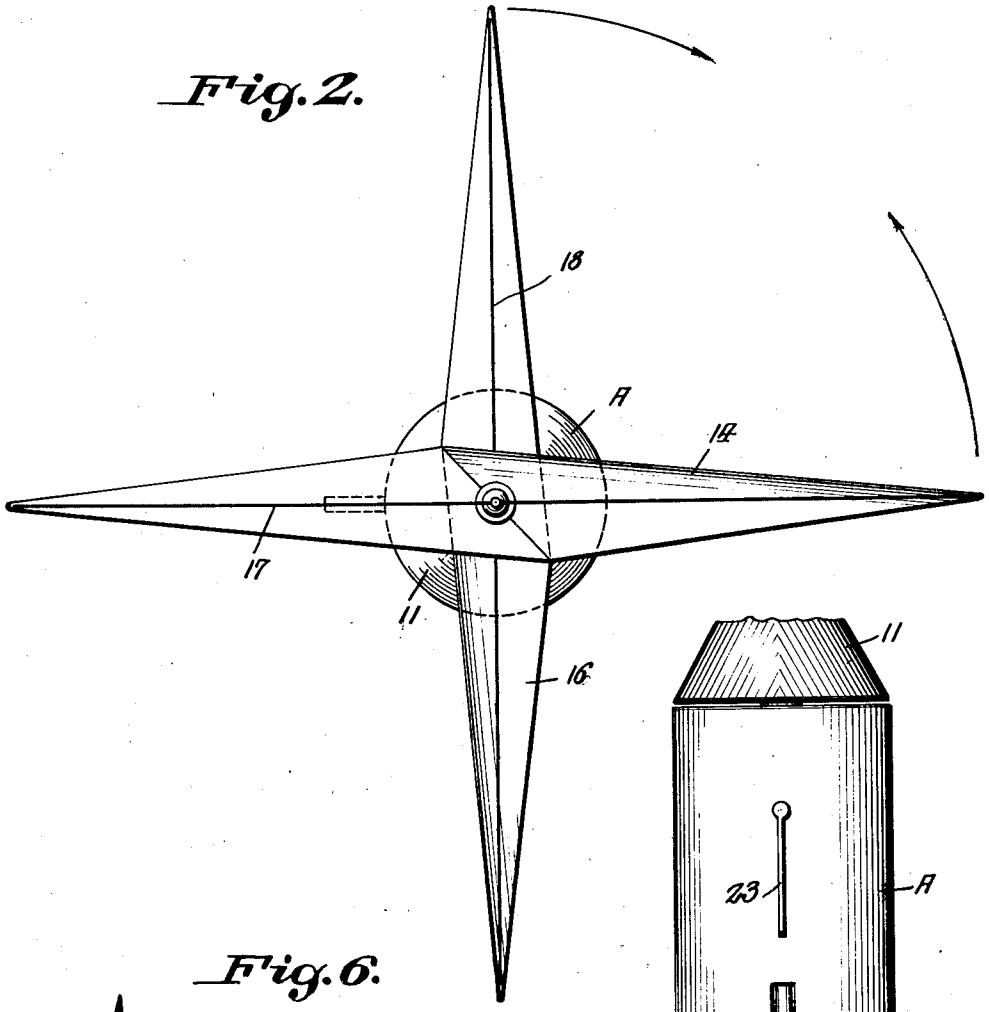


Fig. 6.

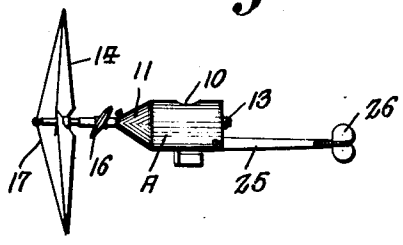


Fig. 3.

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UNITED STATES PATENT OFFICE

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FLYING MACHINE

Application filed February 16, 1931. Serial No. 516,168.

The invention relates to a flying machine, and more especially to planeless heavier than air machines operating as helicopters.

The primary object of the invention is the provision of a flying machine of the character specified, wherein the body thereof is of substantially torpedo or bullet shape and is operated for ascent and descent in a perpendicular path by propeller mechanism, a tail plane and rudder, the propeller mechanism being of novel construction to assure the rapid ascent and descent of the machine, while the tail plane or rudder is so arranged and constructed that it will direct the machine from a perpendicular flight to a horizontal flight.

Another object of the invention is the provision of a flying machine of the character specified, wherein the propeller mechanism is constructed and arranged in a unique manner so that the machine in its entirety is compact and comparatively light in weight, yet strong and durable.

A further object of the invention is the provision of a flying machine of the character specified, wherein the same is at all times under perfect control of the operator and in event of the motor becoming defective or inactive, the machine can be utilized as a parachute so as to safely land the operator from any altitude.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts, as will be hereinafter more fully described in detail, illustrated in the accompanying drawings which disclose the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawings:—

Figure 1 is an elevation of a flying machine, constructed in accordance with the invention, in flight perpendicularly, portions of the body section of said machine being broken away to illustrate interior details.

Figure 2 is a top plan view of the propellers, showing by arrows the direction of rotation thereof with relation to each other.

Figure 3 is a fragmentary plan view looking toward the balancing or centering fin or wing of the machine.

Figure 4 is an elevation of the flying machine, showing the same in a position for initial perpendicular flight.

Figure 5 is an elevation of the flying machine being diverted from perpendicular flight after ascent thereof.

Figure 6 is an elevation of the machine traveling in a horizontal flight.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, the flying machine comprises a cylindrical body A closed at opposite ends and having in its side an opening 10 for the admission of an operator or a passenger within said body. At one end of the body A is arranged an outwardly tapered or conical shaped hollow nose or front section 11 through which extends centrally thereof a main power shaft 12, this being also passed centrally through the body A and has its rear or inner end journaled in a suitable bearing 13 carried by the body, while the outer or forward end of this shaft 12 carries opposed propeller blades 14 of the pull type construction.

The nose 11 is formed with a forward sleeve-like extension 15 on which are fixed opposed propeller blades 16, these being arranged rearwardly or inwardly with respect to the blades 14 and spaced the required distance therefrom. The tips of the blades 14 are braced by suitable guy wires 17 anchored to the shaft 12 and likewise the tips of the blades 16 are braced by the guy wires 18 anchored to the sleeve-like extension 15, as will be obvious.

Located within the nose 11, at one side of the shaft 12 extended therethrough, is a suitable motor 19 which is coupled through the medium of gearing 20 and other suitable connections with the nose 11 and shaft 12, so that the propellers 14 and 16 will be reversely driven.

Arranged within the nose 11 is a suitable fuel tank 21 for supplying fuel to the motor 19.

Mounted in the body A, directly opposite the entrance opening 10 therein, is the operating stem 22 of a centering fin or wing 23, the latter being under the direct control of the operator of the machine when within the body 8.

Suitably mounted within a niche 24 provided in the body A in alignment with the stem 22 of the fin or wing 23 for swinging movement is a tail rudder including an arm 25 having at its outer end the rudder wings 26 and this arm 25 is under manual control by an operator when within the body, the manner of control being suitable to the fancy of the user of the machine.

The nose 11, at its inner end next to the body A, is provided with brake mechanism 27 which is extended into the body A and under control of the operator of the machine. Also the shaft 12, within the body A, is equipped with braking mechanism 28 under the control of the operator of the machine.

The motor 19 may be of any suitable construction and the control thereof had from within the body A in any desirable manner.

In the use and operation of the flying machine for a take-off, it is to be understood that the body A of said machine is in resting position, as shown in Figure 4 of the drawings, with the tail rudder extending laterally at right angles thereto. On the propellers 14 and 16 becoming active, the flying machine will be lifted thereby in flight in a perpendicular path and when the machine has become lifted from the ground or other base, the tail rudder 25 will be brought to the position shown in Figure 1 of the drawings. Then if it is desired to have the machine diverted from a perpendicular path, the tail rudder 25 is manually manipulated to be shifted to the position shown in Figure 5 of the drawings, whereupon the said machine will approach and take a horizontal flight, as shown in Figure 6 of the drawings.

Now in event that motor trouble develops and it is desired to descend or make a landing, the flying machine can be brought to a perpendicular position or approximately so, as shown in Figure 1 of the drawings, and in this position, will act as a parachute to enable a safe landing, as will be obvious.

The body A and nose 11 of the flying machine in their agrouped relation present a torpedo or bullet shape so as to permit rapid flight in travel of the machine, the latter being devoid of any planes and stability is assured.

From the forgeoing, it is thought the construction and manner of operation of the machine will be clearly understood and, therefore, a more extended explanation has been omitted.

It is, of course, to be understood that changes, variations and modifications may be made in the invention without departing from the spirit or sacrificing any of its advantages and which come within the scope of the appended claims.

What is claimed is:—

1. A flying machine, comprising a cylindrical body, a forwardly tapered nose section, a shaft passed centrally through the section and body, a propeller on the shaft and fixed thereto, a propeller on the nose and fixed thereto, means for driving the propellers in reverse directions to each other, a tail arm pivoted to the rear of the body and a tail piece assembly on the arm.

2. A flying machine, comprising a cylindrical body, a forwardly tapered nose section, a shaft passed centrally through the section and body, a propeller on the shaft and fixed thereto, a propeller on the nose and fixed thereto, means for driving the propellers in reverse directions to each other, a tail arm pivoted to the rear of the body, a tail piece assembly on the arm, and means for controlling the propellers.

3. A flying machine, comprising a cylindrical body, a forwardly tapered nose section, a shaft passed centrally through the section and body, a propeller on the shaft and fixed thereto, a propeller on the nose and fixed thereto, means for driving the propellers in reverse directions to each other, a tail arm pivoted to the rear of the body, a tail piece assembly on the arm, means for controlling the propellers, and a center fin on the body.

4. A flying machine, comprising a cylindrical body, a forwardly tapered nose section, a shaft passed centrally through the section and body, a propeller on the shaft and fixed thereto, a propeller on the nose and fixed thereto, means for driving the propellers in reverse directions to each other, a tail arm pivoted to the rear of the body, a tail piece assembly on the arm, means for controlling the propellers, a center fin on the body, and guy cable connections with the tips of the propellers.

5. A flying machine, comprising a cylindrical body, a forwardly tapered nose section, a shaft passed centrally through the section and body, a propeller on the shaft and fixed thereto, a propeller on the nose and fixed thereto, means for driving the propellers in reverse directions to each other, a tail arm pivoted to the rear of the body, a tail piece assembly on the arm, means for controlling the propellers, a center fin on the body, guy cable connections with the tips of the propellers, and a motor operatively connected with the shaft and nose section.

In testimony whereof I affix my signature.

WILLIAM J. BUCHANAN.