

C. L. TWEEDALE.
KITE AND SIMILAR AERIAL MACHINE.
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992,086.

Patented May 9, 1911.

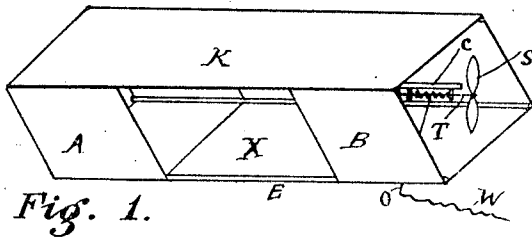


Fig. 1.

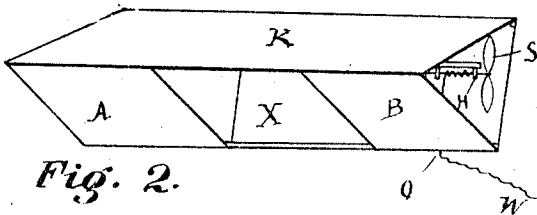


Fig. 2.

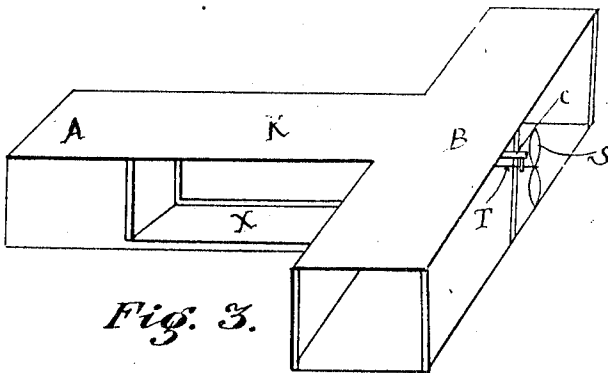


Fig. 3.

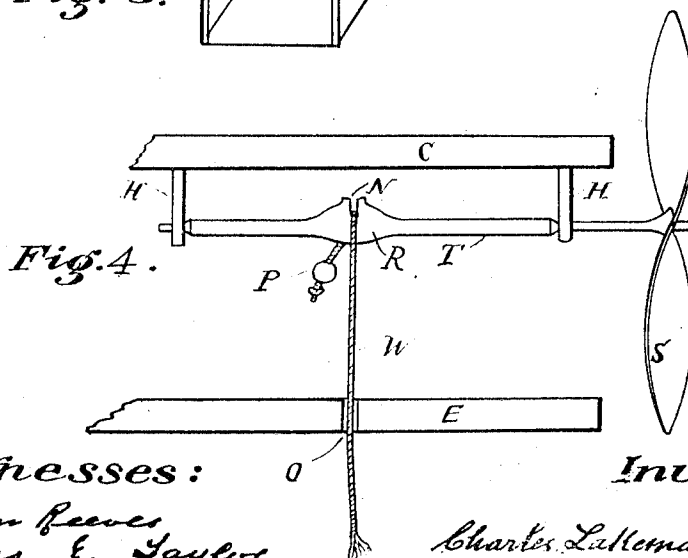


Fig. 4.

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UNITED STATES PATENT OFFICE.

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KITE AND SIMILAR AERIAL MACHINE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES LAKEMAN TWEEDALE, residing at The Vicarage, Weston, near Otley, Yorkshire, England, a subject of King Edward VII, have invented new and useful Improvements in Kites and Similar Aerial Machines, of which the following is a specification.

This invention is especially applicable to kites, or similar aerial machines, composed of square, triangular, circular, or composite cells, on the principle of the Hargreave, or box, kite, or to those composed of two pairs of superimposed planes, one pair at each end of a suitable rod or framework, on the principle of the biplane. It may also be applied to kites of the monoplane type.

The object of my invention is to assist the kite, or similar aerial machine, to rise up into the air, and to help to maintain and steady it in its flight when up in the air.

To enable my description to be the better understood I have attached drawings to this statement.

Figure 1 shows my invention applied to a box kite with square or diamond shaped cells. Fig. 2 shows it applied to a kite on the Hargreave principle, but with triangular cells. Fig. 3 illustrates its application to a kite, or aerial machine, on the biplane principle. Fig. 4 shows the screw propeller and shaft with the releasing device.

To attain the object of my invention I affix a suitably driven and released screw propeller to the kite, or similar aerial machine, and I roof over the space between the front and rear cells, or sets of planes, making the upper surface of the cells, or the upper planes, one continuous surface.

The manner in which I carry out my invention is as follows: A shaft T carrying a screw propeller S is affixed to the main rod or backbone C of the kite, or aerial machine when this is central as in the Hargreave, or box kite, or to a rod C which is secured to the cross braces, or other suitable portion of the kite or similar aerial machine in which there is no central rod or backbone, so that the propeller shaft lies centrally in the box or cell, or between the superimposed planes, the propeller thus working centrally within, or just in front of, the mouth of the box or cell, or centrally between the superimposed planes, when the kite or aerial machine is a biplane, and thus being protected from contact with the ground in its revolutions should

the kite or aerial machine come down to the ground.

The shaft T of the screw propeller S works in suitable bearings H, H, secured to the rod C. It carries the screw propeller S which can be made detachable for convenience of packing the kite, or aerial machine, when of the knock down construction. The screw propeller and shaft may be rotated to raise the kite in the air, and then set free to be rotated by the wind when the kite is up in the air, by any suitable mechanism. The manner in which I prefer to rotate the screw propeller and afterward set it free to be rotated by the wind is as follows. That portion of the shaft T lying between the bearings H H is broadened or spread out at the point R, or a metal plate R may be soldered or brazed to the shaft. In this a notch or slot N is cut. This slot takes the kite string W which terminates in a knot or bead P, as shown in Fig. 4. On turning the screw propeller, or holding it the reverse way to the wind, the kite string, or cord, W is wound upon the propeller shaft T, lying between the bearings H H, until the space available is nearly full. The cord or string W passes through a hole O in the lower rod E of the kite frame, as shown in Fig. 4, said hole or loop, as the case may be, being of such a size as not to allow of the passage of the bead P on the end of the kite string W.

In those kites or aerial machines constructed on the principle of the box or Hargreave kite with cells one at each end of a rod or framework, or on that known as the biplane principle with pairs of superimposed planes, one pair at each end of a suitable framework, I roof over the space K lying between the front and rear cells A and B or between the front and rear pairs of planes A and B (see Figs. 1, 2, and 3,) thus making the upper surface of the cells or the two upper planes one continuous surface, while leaving the openings underneath at X for the admission of air currents. This roof increases the buoyancy of the box kite, biplane, or similar aerial machine, and causes it to be more strongly supported by its upper surface than by the lower surface thus keeping the upper surface uppermost in the air, and steadying said box kite, biplane, or similar aerial machine, in its flight. To fly the kite or aerial machine the knot or bead P on the end of the kite string or cord W is placed in the notch or slot N on

the propeller shaft T and the string is then wound upon the shaft by turning it to the right until the space on the shaft between the bearings H H is nearly full of the cord or string. The kite is now held up to the wind. The pull on the string instantly causes the screw propeller to revolve as the string is unwound from the shaft and passes through the hole O, in the lower rod E, or the loop O, as the case may be. The kite goes up with a rush and a whirring sound as the screw propeller revolves. By the time the string coiled upon the shaft T is all unwound the kite is high in the air and well up into the higher wind currents. When the string is all unwound from the shaft the bead P is released from the slot N and is caught at the hole O in the lower rod E, as the case may be, thus holding the kite securely, while the screw propeller and shaft, now free, revolve with great rapidity, still in the same direction as before, under the influence of the strong air current rushing through and concentrated by the kite cells or planes, adding to the buoyancy and steadiness of the kite in its flight in the air.

In my invention as applied to cellular kites or biplanes, the screw propeller is protected from contact with the ground should

the kite come down and be dragged or rolled over, by the string or the wind.

Having now particularly described my invention and the manner in which it may be carried into effect I declare that what I claim is—

The improved box kite having the space between the front and rear cells roofed over, said box kite fitted with a screw propeller placed centrally in the front cell and having its shaft, or axis, parallel with the main axis of the box kite, said propeller shaft rotated by means of a string coiled thereon, said propeller shaft fitted with a slotted plate forming part of, or attached to, the shaft, said string furnished at the extremity with a bead engaging with the slotted plate, said string passing through a hole in the frame of the box kite of such a size as not to permit of the passage of the bead; all substantially as herein illustrated and described.

In testimony whereof I have signed my name to this specification in the presence of the two subscribing witnesses.

CHARLES LAKEMAN TWEEDALE.

Witnesses:

WILLIAM REEVES,
CHARLES E. TAYLOR.