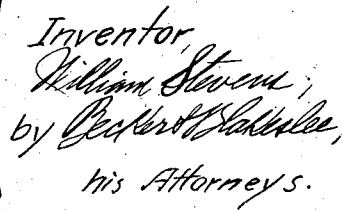


Patented Dec. 12, 1911.



UNITED STATES PATENT OFFICE.

WILLIAM STEVENS, OF LOS ANGELES, CALIFORNIA.

FLYING-MACHINE.

1,011,387.

Specification of Letters Patent.

Patented Dec. 12, 1914.

Application filed October 26, 1910. Serial No. 589,226.

To all whom it may concern:

Be it known that I, WILLIAM STEVENS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Flying-Machines, of which the following is a specification.

This invention relates to flying machines and similar apparatus and mechanism for navigating the air, and more particularly to starting, alighting or landing means for the same; and the invention has for its object to provide improvements of the general nature stated, which will be relatively simple and inexpensive in construction, positive in operation, durable, which will adapt themselves through a wide range of varying conditions attendant upon use of the main flying machine or similar structure, and which will be generally superior in efficiency and serviceability.

With the above and other objects in view, the invention consists in the novel provision, construction, formation, combination, association and relative arrangement of parts, members and features, all as hereinafter described, shown in the drawing, and finally pointed out in claim.

The present invention is described and illustrated in an application for Letters Patent filed by me April 25, 1910, for flying machines, Serial No. 557,598, as part of a complete flying machine or apparatus for navigating the air.

In the drawing:—Figure 1 is a side elevation of a flying machine provided with the improvements constituting the invention, the same being partly broken away for clearness of illustration; and Fig. 2 is a vertical transverse sectional view of the same, taken upon the line 2—2, Fig. 1, and looking in the direction of the appended arrows, parts being omitted, broken away, or shown in full lines, for clearness of illustration.

Corresponding parts in both the figures are denoted by the same reference characters.

Referring with particularity to the drawing, A designates the main frame of a flying machine or apparatus for navigating the air, the general type of which is not concerned in the present invention, but which is provided at the forward end with propulsion means B and with oppositely projecting lateral movable supporting structures

or planes or wings, C and D respectively; said main frame A being provided at its rearward end portion with a fixed horizontal plane *z*, a vertical rudder E, and an operator's seat G.

b designates controlling or operating means extending forwardly from the operator's seat to the lateral movable supporting members C and D.

H designates the running gear, starting gear or alighting means which constitutes or embodies the invention, the same being disposed beneath the frame or body A and comprising a forward wheeled support H¹ and a rearward wheeled support H². The wheeled support H² of the running gear H comprises depending arms 9 with which a wheel 10 is connected and sustained in braced relation; and the forward wheeled support H¹ comprises spaced depending arms 11 pivotally connected at their upper ends, as at 12, with the main frame A, for both lateral and longitudinal movement, and pivotally connected at their lower ends as at 13, with a transverse wheel shaft 14 upon the ends of which are mounted the wheels 15. A supplemental frame member 16 depends from the frame member A above the wheel shaft 14; and tension means M, opposing lateral movement of the wheeled support H¹, extend between said frame member 16 and the shaft 14. Similar tensional means N, opposing longitudinal movement of the wheeled support H¹, extend between the shaft 14 and the main frame A. The tension means M comprise contractile coil springs 17 tied at their ends to the end portions of the shaft 14 and to the frame member 16; and the tension means N comprise similar coil springs 18 tied at their ends to the ends of the shaft 14 and to the main frame A. The wheeled support H¹, because of the above construction and connection of the parts, is capable of buckling or yielding laterally and longitudinally, under tensional opposition, the pivotal connections of parts described being so organized, to the end that the wheels may operatively bear upon the earth even if the main frame A and the other parts of the machine or apparatus are in a condition of disturbed lateral or longitudinal stability.

The operation, method of use and advantages of the improvements in starting gear, running gear or alighting gear constituting or embodying the invention will be readily

understood from the foregoing description, taken in connection with the accompanying drawing and the following statement.

The machine or apparatus, in initiating
5 the movement thereof, travels upon the wheeled supports H^1 and H^2 . When the machine or apparatus again descends to the earth, the alighting means or running gear H , due to the yielding formation of the forward wheeled support H^1 thereof, permit-
10 ting the machine to adapt itself upon its course upon the surface of the earth to varying conditions of stability or unevenness of running surface, thus permitting the ma-
15 chine to take the earth again, upon descent from flight, even when such descent is accompanied by disturbed lateral or longitudinal stability or balance, or both. It is manifest that the rearward wheeled support H^2
20 may, if preferred, be organized similarly to the forward wheeled support H^1 . The tension means M and N , while permitting the forward wheeled support H^1 to yield or give laterally or longitudinally, in the compen-
25 sating manner above described, nevertheless oppose such yielding movements, resiliently, and check finally any tendency of the machine or apparatus to upset or fall.

I do not desire to be understood as limiting myself to the specific provision, construction, combination and organization of parts, members and features shown and described; but reserve the right to vary the same in adapting the improvements to varying conditions of use without departing
30 from the spirit of the invention and the terms of the following claim.
35

Having thus described my invention, I claim and desire to secure by Letters Patent:
40

A flying machine or apparatus provided with a frame or body, arms depending from said frame or body and pivoted each at a common point both for lateral and longitudinal movement, a wheeled shaft pivotally
45 connected with the lower ends of said arms, and springs extending both laterally and longitudinally between said shaft and said frame or body.

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

WILLIAM STEVENS.

Witnesses:

RAYMOND I. BLAKESLEE,
CHARLES D. WARDEN.