

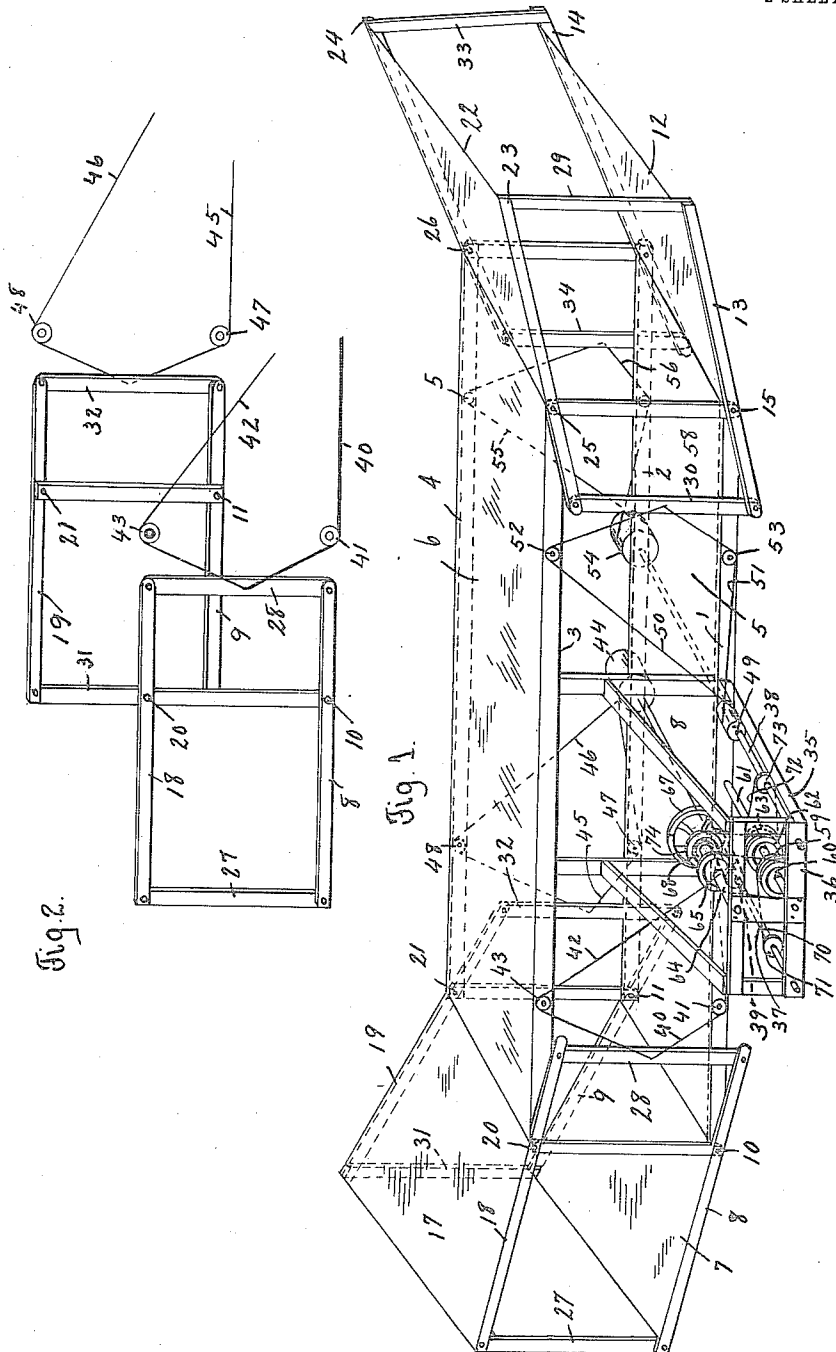
G. M. ROBINSON & J. O. PARKER.  
FLYING MACHINE.

APPLICATION FILED JUNE 6, 1912.

1,044,691.

Patented Nov. 19, 1912.

2 SHEETS-SHEET 1.



Witnesses.

Bertha McMaster  
Frank Waterbury

Inventors.

George M. Robinson.  
Jesse O. Parker.

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Attorney.

G. M. ROBINSON & J. O. PARKER.

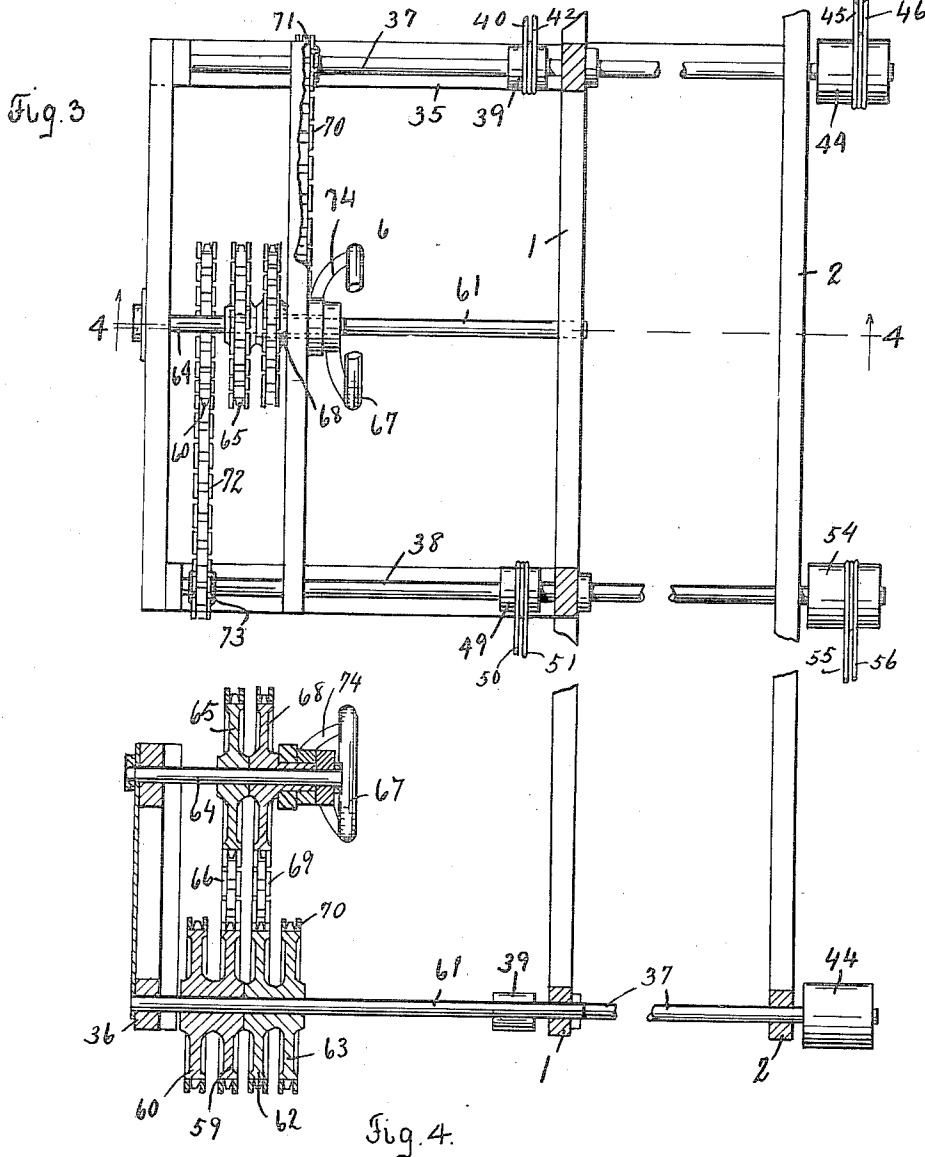
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Attorney.

# UNITED STATES PATENT OFFICE

GEORGE M. ROBINSON AND JESSE O. PARKER, OF LOS ANGELES, CALIFORNIA.

## FLYING-MACHINE.

1,044,691.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed June 6, 1912. Serial No. 702,028.

*To all whom it may concern:*

Be it known that we, GEORGE M. ROBINSON and JESSE O. PARKER, residing at Los Angeles, county of Los Angeles, State of California, have invented a new and useful Flying-Machine, of which the following is a specification.

Our object is to make a biplane or monoplane flying machine in which the outer sides of the supporting planes are hinged and swung up and down to provide a convenient manually operated gearing for manipulating the swinging portions of the planes, and our invention consists of the novel features herein shown, described and claimed.

In the drawings—Figure 1 is a front perspective of a biplane flying machine embodying the principles of our invention. Fig. 2 is a perspective illustrating the details of the swinging framework at one side of the machine. Fig. 3 is a plan of gearing for operating the swinging framework. Fig. 4 is a vertical sectional detail on the line 4—4 of Fig. 3.

Referring to the drawings in detail: The lower supporting plane includes a front sill 1 and a rear sill 2, and the upper supporting plane includes the front sill 3 and the rear sill 4. The sills 1 and 3 are framed together in vertical alinement and the sills 2 and 4 are similarly framed together, so that the lower supporting plane 5 and the upper supporting plane 6 are rigidly connected. The lower side wing 7 includes the front lever 8 and the rear lever 9, said levers 8 and 9 being connected intermediate of their ends to the ends of the sills 1 and 2 by the pivots 10 and 11. The lower side wing 12 includes the levers 13 and 14, said levers 13 and 14 being connected at points intermediate of their ends to the other ends of the sills 1 and 2 by pivots 15 and 16. The upper side wing 17 includes the levers 18 and 19, said levers being connected to the ends of the sills 3 and 4 by the pivots 20 and 21. The upper side wing 22 includes the levers 23 and 24, said levers being connected to the other ends of the sills 3 and 4 by the pivots 25 and 26. A link 27 connects the outer ends of the levers 8 and 18 and a similar link 28 connects their inner ends. A link 29 connects the outer ends of the levers 13 and 23 and a similar link 30 connects their inner ends. Links 31 and 32 connect the ends of the levers 9 and 19 and

similar links 33 and 34 connect the ends of the levers 14 and 24.

Arms 35 extend forwardly from the sill 1 and support a bearing block 36, said bearing block being parallel with the sill 1. Counter shafts 37 and 38 are mounted upon or in the sills 1 and 2 and in the bearing block 36. A pulley or winding drum 39 is mounted upon the shaft 37 in front of the sill 1 and a cord 40 is attached to this drum and runs outwardly under the guide roller 41 and is attached to the center of the link 28. A similar cord 42 is attached to the drum 39 and reversely wound upon the drum and extends over the guide roller 43 and then downwardly and is attached to the center of the link 28. The cords 40 and 42 are reversely wound upon the winding drum 39,—that is, one cord is wound one way and the other the other way so that when the winding drum is rotated one cord will wind up and the other one unwind, and when the winding drum is reversed the other cord will wind up and the first cord unwind. A second winding drum 44 is fixed upon the rear end of the shaft 37 and cords 45 and 46 are attached to the drum 44 and reversely wound upon the drum and extend around the guide rollers 47 and 48 and are attached to the center of the link 32. In a like manner the winding drum 49 is mounted upon the shaft 38 and cords 50 and 51 are attached to the winding drum 49 and reversely wound upon the drum and extend around the guide rollers 52 and 53 and are attached to the center of the link 30. The winding drum 54 is fixed upon the shaft 38 and cords 55 and 56 are attached to the drum and reversely wound upon the drum and extend around the guide rollers 57 and 58 and are attached to the center of the link 34.

The rear winding drums 44 and 54 are larger than the forward winding drums 39 and 49, so that when the shafts 37 and 38 operate, the rear sides of the wings 7 and 17, 12 and 22 will move upwardly or downwardly faster and farther than the front sides, the parts being assembled so that the wings are normally level with the rigid portions of the supporting planes.

The gears 59 and 60 are rigidly connected together and mounted upon the stub-shaft 61 and the gears 62 and 63 are rigidly connected together and mounted upon the stub-shaft 61 beside the gears 59 and 60. The stub-shaft 61 is mounted between the shafts

37 and 38, at their extreme forward ends. The controller shaft 64 is mounted above the stub-shaft 61 and a gear 65 is fixed upon the controller shaft 64 and connected to the  
 5 gear 59 by the chain 66. The controller handle 67 is fixed upon the rear end of the shaft 64. The gear 68 is rotatably mounted upon the shaft 64 and connected to the gear 62 by the chain 69. The chain 70 connects  
 10 the gear 68 to the gear 71 upon the shaft 37 and the chain 72 connects the gear 60 to the gear 73 upon the shaft 38. The controller handle 74 is attached to the gear 68. The controller handles 67 and 74 are in a  
 15 position convenient to the operator of the flying machine and when either handle is operated the corresponding side wings are operated as required to warp the planes and manipulate the machine.

20 The details of construction may be varied in many ways without departing from the spirit of our invention as set up in the following claims.

We claim—

25 1. In a flying machine, a central supporting plane; swinging wings extending outwardly from the sides of the central supporting plane; lever arms extending inwardly from the swinging wings; counter  
 30 shafts mounted crosswise of the supporting plane; winding drums upon the counter shafts, the drums upon the rear ends of the counter shafts being larger than the forward drums; cords attached to the winding drums  
 35 and reversely wound and connected to the lever arms; a stub-shaft mounted parallel with the counter shafts; gears mounted upon the stub-shaft independent of each other, certain of said gears being connected to the  
 40 counter shafts; a controller shaft mounted above the stub-shaft; gears upon the controller shaft independent of each other and connected to certain of the gears upon the stub-shaft; and controller handles connected

to the gears upon the controller shaft so  
 45 that when one controller handle is operated, the corresponding wing is operated and when the other controller handle is operated, the other wing is operated, so that the rear  
 50 sides of the wings will move faster and farther up or down than the forward sides.

2. In a flying machine, two central supporting planes rigidly connected together; swinging wings extending outwardly from  
 55 both sides of each supporting plane; lever arms extending inwardly from the front and rear sides of each swinging wing; links connecting the inner ends of the corresponding pairs of lever arms; counter shafts  
 60 mounted crosswise of the supporting planes; winding drums upon the counter shafts, the rear drums being larger than the forward drums; two cords attached to each winding drum and reversely wound and  
 65 passed over guide rollers and connected to said links; a stub-shaft mounted parallel with the counter shafts; gears upon the counter shafts; independent gears upon the stub-shaft and connected to certain of the  
 70 gears upon the counter shafts; a controller shaft; independent gears upon the controller shaft connected to certain of the independent gears upon the stub-shaft; and controller handles connected to the independent  
 75 gears upon the controller shaft, so that when one controller handle is operated the corresponding pair of wings is operated and so that when the other controller handle is operated the other pair of wings is oper-  
 80 ated, and so that the rear side of the wings will move faster and farther up and down than the forward sides.

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Witnesses:

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