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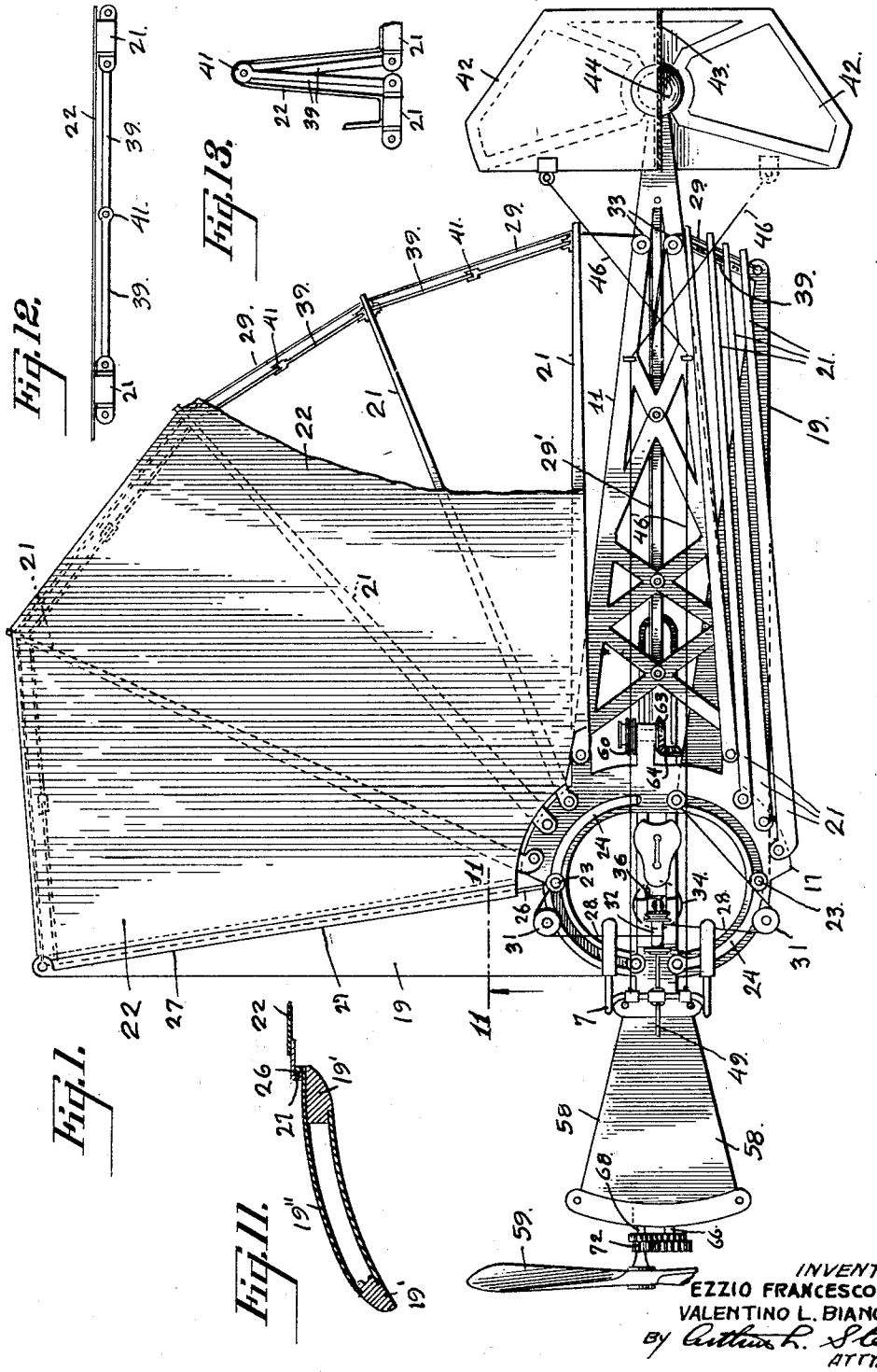
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June 10, 1930. E. FRANCESCONI ET AL 1,762,657

FLYING MACHINE

Filed April 17, 1928 4 Sheets-Sheet 1

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FLYING MACHINE

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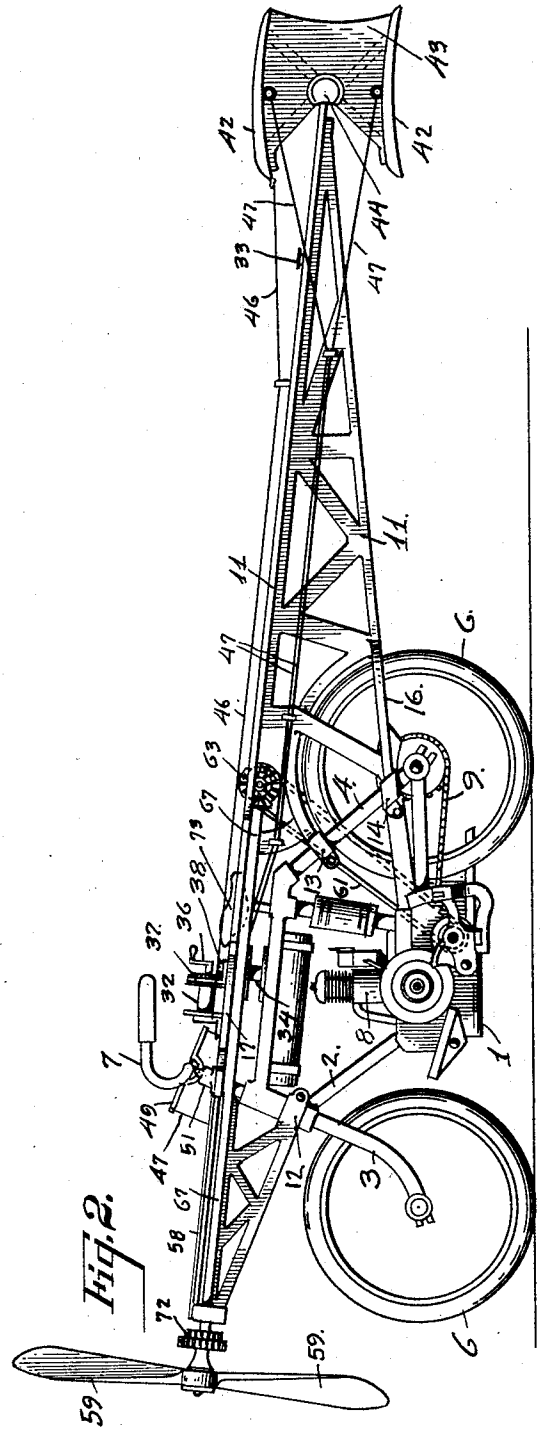


Fig. 2.

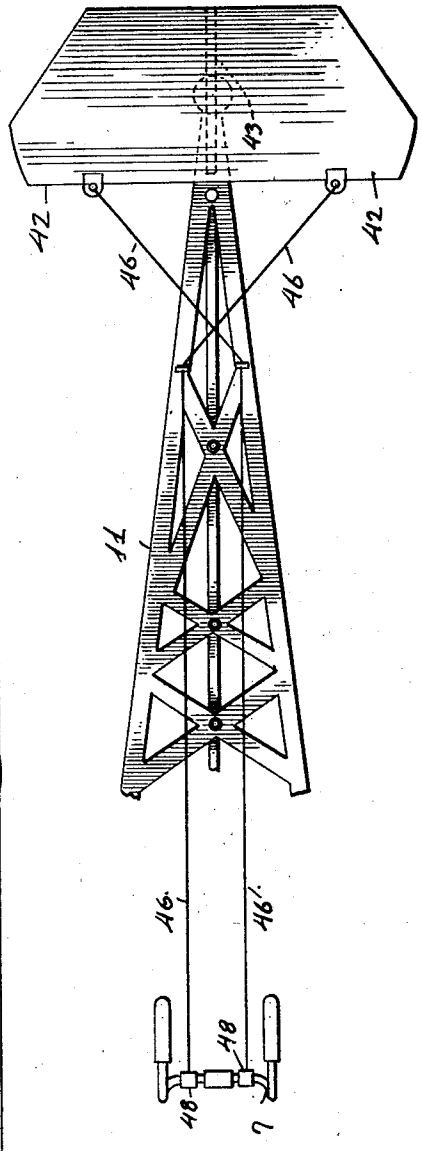


Fig. 3.

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FLYING MACHINE

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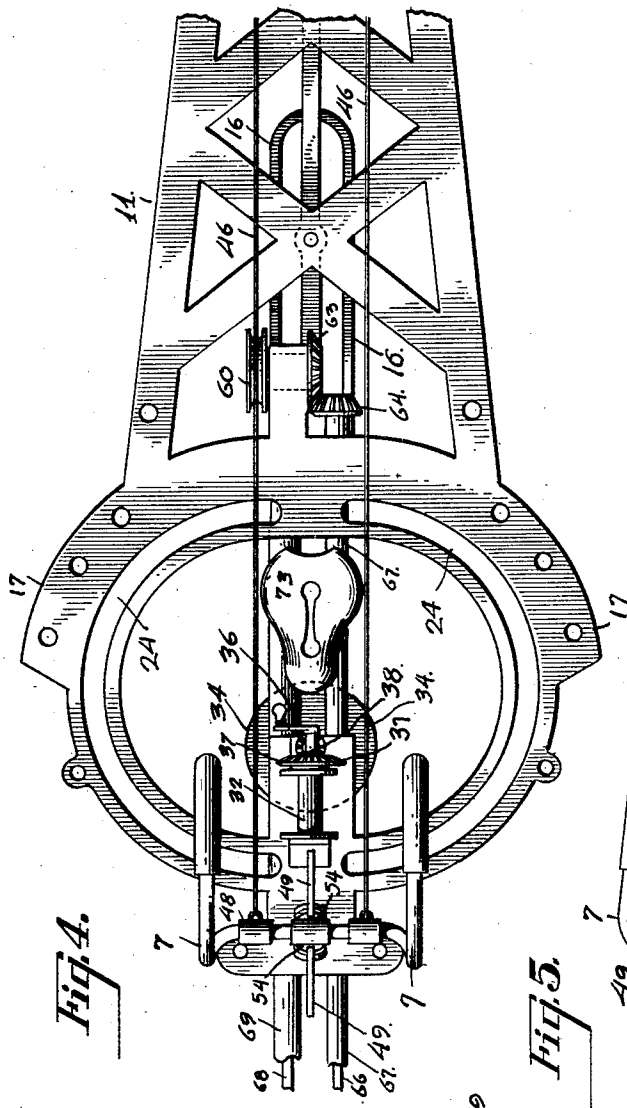


Fig. 4.

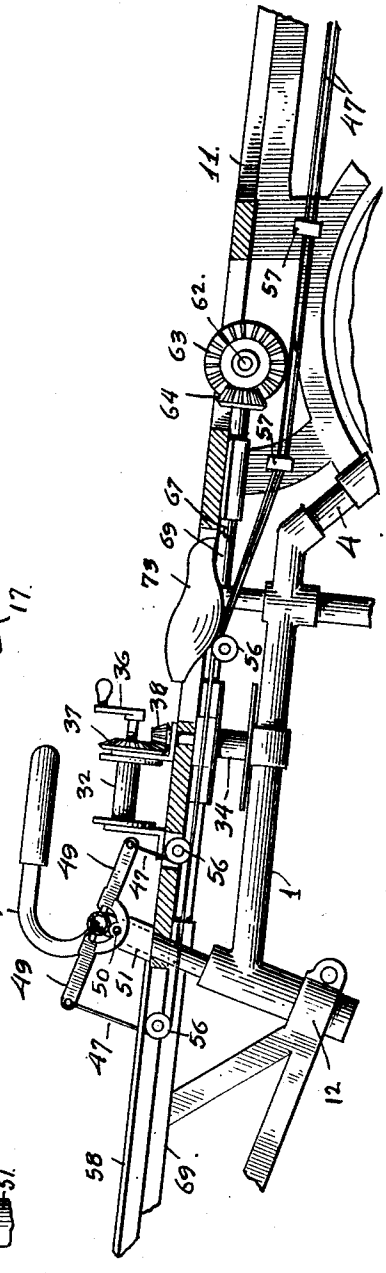


Fig. 5.

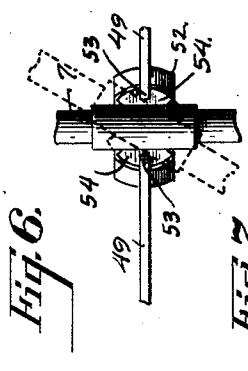


Fig. 6.

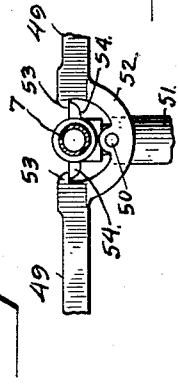


Fig. 7.

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FLYING MACHINE

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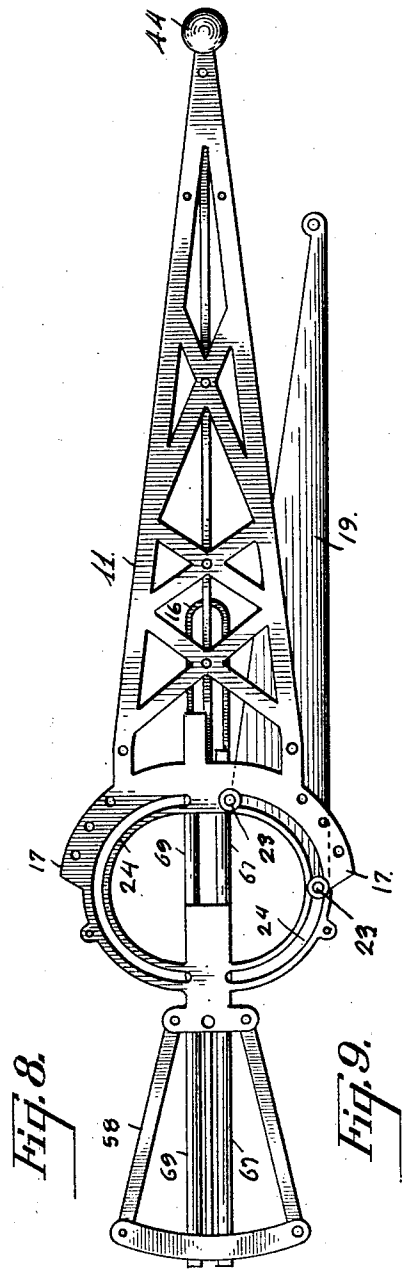


Fig. 8.

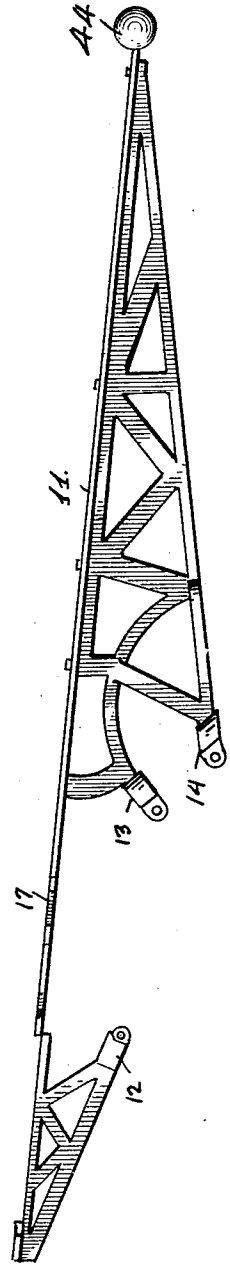


Fig. 9.

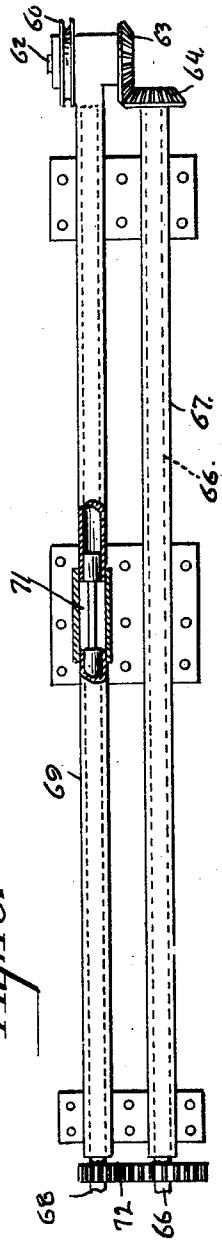


Fig. 10.

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Patented June 10, 1930 1,762,657

UNITED STATES PATENT OFFICE

EZZIO FRANCESCONI, OF SAN FRANCISCO, AND VALENTINO L. BIANCHI, OF OAKLAND, CALIFORNIA

FLYING MACHINE

Application filed April 17, 1928. Serial No. 270,769.

Our invention relates to improvements in flying machines wherein a motor cycle or the like is arranged to be fitted with collapsible wings and with propelling and steering means whereby the machine may be operated either upon the ground or in the air.

The primary object of our invention is to provide an improved flying machine.

Another object is to provide an improved machine which may be used for transportation either upon the ground or in the air.

A further object is to provide an improved flying machine having collapsible wings which may be readily moved to operative or inoperative positions as desired.

A further object is to provide an improved flying mechanism of the character described which may be readily applied upon and operated by a motor cycle.

Another object is to provide an improved collapsible wing construction and wing operating mechanism.

A further object is to provide improved steering means which may be easily connected and operated by and in conjunction with the steering mechanism of a motor cycle.

A still further object is to provide an improved machine of the character described which is light and compact in form and which can be manufactured and operated economically and efficiently.

We accomplish these and other objects by means of the improved device disclosed in the drawings forming a part of the present application wherein like characters of reference are used to designate similar parts throughout the specification and drawings, and in which—

Fig. 1 is a broken plan view of my improved flying machine, one wing being shown in collapsed position and with the covering removed;

Fig. 2 is a side elevation of the machine;

Fig. 3 is a broken plan view of a portion of the wing frame and steering means;

Fig. 4 is a broken plan view of a portion of the wing frame and steering connections and driving mechanism, the figure being drawn upon a somewhat larger scale;

Fig. 5 is a broken sectional view of a portion of the wing frame as mounted upon a motor cycle and showing the steering connections;

Figs. 6 and 7 are broken detail views of the handle bar connections of the steering mechanism;

Fig. 8 is a plan view of the wing frame alone;

Fig. 9 is a side elevation of the frame as shown in Fig. 8;

Fig. 10 is a plan view of the propeller driving connections;

Fig. 11 is a sectional detail taken upon the line 11—11 of Fig. 1 in the direction indicated;

Fig. 12 is a broken detail showing the manner in which the ends of the ribs are braced when extended; and

Fig. 13 is a view of the parts shown in Fig. 12 when moved to folded position.

Referring to the drawings, the numeral 1 is used to designate in general a motor cycle of the well known form and construction having a frame 2 provided with front and rear fork portions 3 and 4 arranged to receive wheels 6, the front fork 3 being pivotally movable and provided with a handle bar 7 for steering the cycle upon the ground in the well known manner. The cycle is provided with a suitable power motor 8 connected to the rear wheel 6 by means of a chain 9 or other suitable driving means for propelling the machine along the ground. The specific construction of the motor-cycle is well known in the art and requires no detailed description herein.

A wing frame designated in general by the numeral 11 is detachably secured upon the frame 2 of the cycle, preferably by means of suitable clamp portions 12, 13, and 14 en-

gaging the frame 2 The frame 11 is made substantially T shaped in cross section and extends longitudinally from front and back of the motor-cycle 1. A yoke portion 16 is arranged to fit over the rear wheel of the cycle, and a flat circular portion 17 open in the center thereof is positioned directly over the body of the motor cycle.

A pair of collapsible wings are mounted upon the sides of the wing frame 11, each frame consisting of a main rib 19 and a plurality of stay ribs 21. The ribs 21 are pivotally mounted upon the sides of the frame 11 and are arranged to be moved from an inoperative closed position substantially parallel to the sides of the frame 11 to an extended operative position diverging outwardly from the sides of the frame. A suitable fabric covering 22 is mounted over the stay ribs.

The main ribs 19 each consist of a suitable frame 19′ having a suitable covering 19″. The ribs are mounted by means of suitable mounting elements 23 engaging arcuate slots 24 formed in the frame portion 17 and arranged to permit the ribs to swing through substantially 90° of pivotal movement. The upper rearward edge of each rib 19 is provided with a flange 26 arranged to interlock with a flanged member 27 secured upon the edge of the covering 22. The main ribs 19 are supported upon the under side of the frame portion 17 and the mounting elements 23 are arranged substantially 90° apart to obtain a rigid and stable mounting. The ribs 19 taper toward their outer ends and are arranged to be swung under the stay ribs 21 and substantially parallel to said ribs 21 and the sides of the frame 11 when moved to inoperative position and to extend outwardly at substantially right angles to the frame when moved to operative position.

The wings are arranged to be moved between their operative and inoperative positions by means of cables 28 and 29. A cable 28 is connected to one of the mounting elements 23 of each wing and extended around a roller 31 and wound upon a drum 32 mounted upon the frame 11, both cables 28 being wound onto the same drum. The cables 29 are connected at one end to the extreme outer ends of the main ribs 19 and the ends of each of the stay ribs 21 associated therewith, said cables being extended around rollers 33 mounted upon the rearward portion of the frame 11 and carried onto a drum 34 mounted adjacent the drum 32. The cables are preferably joined into a single cable 29′ between the rollers 33 and the drum 34 whereby said cables are taken in or paid out from said drum as a single cable.

The drums 32 and 34 are actuated by a suitable crank 36 connected to the drum 32 and provided with a gear 37 meshing with a pinion 38 arranged to actuate the drum 34 at a speed adapted to take in and pay out the cable 29 at a rate exceeding the speed of the drum 32 in the same ratio that the length of cable 29 exceeds the length of cable 28 necessary to obtain a complete movement of the wings between their operative and inoperative positions.

Bracing members 39, hinged as at 41 at their centers, are pivotally connected between the ends of adjacent wing ribs. When the wings are extended, the members 39 are strengthened into axial alinement as best shown in Fig. 12, and form braces rigidly holding the ends of the ribs in properly spaced relation. When the wings are folded to inoperative position the members are swung upwardly and moved to substantially parallel relation and displace the covering 22 into regular upwardly disposed folds as best shown in Fig. 13 of the drawings.

A steering member, comprising a pair of vertically spaced horizontal rudders 42 and a vertically disposed rudder 43 centrally disposed between said rudders 42, is mounted for universal movement upon the rearward end of the frame 11 by means of a ball and socket joint 44. The horizontal and vertical rudders are actuated together as a single element by means of pairs of cables 46 and 47. The cables 46 are connected to the rudders 42 at transversely opposite points thereon and are crossed and extended longitudinally forward along the frame and secured to the handle bar 7 upon opposite sides of the axis of pivotal movement thereof as at 48 whereby the movement of said bar about a vertical pivot, as in steering the motor-cycle, operates to actuate the rudder about a vertical axis and thereby operate to steer by means of the vertical rudder.

The cables 47 operate to move the rudder member about a horizontal axis, said cables being connected to the upper and lower rudder portions and being extended forwardly into engagement with the ends of an actuating lever 49 pivotally mounted as at 50 upon a stationary post 51 secured upon the frame 11 around the upper portion of the fork member 3, by means of downwardly curved and outwardly offset lateral extensions 52 extending upon opposite sides of the post 57. Projections 52 are formed upon the lever 49 immediately in front and back of the upper end of the fork member 3 and engaged by oppositely disposed sections 54 formed upon the handle-bar 7 whereby the handle-bar and the member 3 may be moved pivotally about a vertical axis independently of the lever 49 while a pivotal movement of the handle bar 7 about its horizontal pivot upon the top of the member 3 will cause the sections 54 to engage the projections 52 and actuate the lever 49 and cause the cables 47 to move the rudder member upon a horizontal axis. The cables 47 are carried over suitable rollers 56 and

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guides 57 to insure free movement and correct alinement of the cables.

A stabilizing plane 58 is secured upon the forward portion of the wing frame 11 to assist in maintaining a proper balance when in the air.

A suitable propeller 59 is monuted upon the extreme forward end of the frame 11. The propeller is driven from the power motor 8 by suitable driving connections connected therebetween. In the drawings I have illustrated an arrangement wherein a drive member 61 is connected between the motor 8 and a pulley or sprocket 60 upon a shaft 62 mounted upon the frame 11 and provided with a bevel gear 63 meshing with a gear 64 keyed upon a shaft 66 extending longitudinally along the frame 11 through a casing 67. The outer end of the shaft 66 is geared to a propeller shaft 68 arranged parallel to the shaft 66 and extending longitudinally along the frame 11 through a casing 69 provided with a suitable split thrust bearing 71. The gearing between the shafts 66 and 68 may be of any desired arrangement as at 72, a plurality of gears arranged to obtain a variable transmission being preferred. As the specific structure of such transmission does not constitute a part of the present invention, a detailed description is unnecessary.

In practice, our improved machine, constructed and assembled as above described, may be operated either for transportation along the ground or in air. As a motor-cycle, the operator, seated upon the usual seat 73, operates the machine in the ordinary manner, the wings being folded to inoperative position along the sides of the frame 11. When it is desired to operate the machine in the air, the wings are moved to extend the wings to operative position by winding the cables 28 onto the drums 32, thereby drawing the mounting elements 23 from folded position as shown upon the folded wing portion in Fig. 1 to the position shown in connection with the extended wing in said figure, thereby swinging the main ribs outwardly to the operative extended position. The drum 34 is actuated simultaneously with the drum 32, thereby paying out the cables 29 as the ends of the ribs 19 move away from the frame 11. As the main ribs move outwardly from under the folded stay ribs 21, the flanges 26 and 27 are moved into interlocking relation whereby the coverings 22 are drawn taut as the wings are spread. As the wings are spread, the bracing members 39 are extended to brace the ends of the stay ribs 21 and hold the same in rigidly spaced relation.

When the wings are thus extended they form planes of substantial area extending outwardly from the sides of the machine. The machine is propelled along the ground, either by the motor-cycle transmission driving the rear wheel 3, or by means of the air propeller 59 until sufficient speed has been attained to take off from the ground. Thereafter the propeller is actuated to maintain the necessary flying velocity.

While in the air, the machine is steered by manipulating the handle bar 7, said bar being turned about its vertical pivot axis to operate the vertical rudder, and turned about its horizontal pivot axis to actuate the horizontal rudders from the lever 49, the rudder member being turned upon its universal mounting to present resistance tending to turn the machine in the desired direction.

The wings, steering rudders and connections and the air propeller and its driving connections are mounted upon the wing frame 1 and entirely supported thereby, thus permitting the frame to be detached from the motor-cycle to permit use of said motor-cycle entirely independently of the flying attachments. The frame and flying mechanism may be constructed and assembled entirely independently of the motor-cycle and sold as an independent article of manufacture to be assembled upon a motor-cycle of standard make. The entire structure is relatively light and compact and may be easily and efficiently operated and conveniently stored when not in use.

While we have illustrated and described our invention in what we now regard as the preferred embodiment, the device is of course subject to modification in a great number of ways as to the specific construction and arrangement of the elements. We therefore do not wish to restrict ourselves to the specific details of construction and arrangement illustrated and described, but desire to avail ourselves of all modifications which may fall within the scope of the appended claims.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is—

1. A flying machine comprising the combination with a motor-cycle consisting of a wheel supported frame having steering means and means for driving the cycle upon the ground, of a wing frame mounted upon the frame of the cycle; a pair of collapsible wings mounted upon the sides of the wing frame and consisting of a plurality of ribs pivotally mounted upon the wing frame and a covering mounted over the ribs, said ribs being movable from a closed position substantially parallel to the sides of the frame to an open position extending the covering to form fan shaped wings extending outwardly from the sides of the frame; means connected between the outer ends of adjacent ribs for moving the covering into folds when the wings are collapsed and for bracing the ends of said ribs when the wings are extended; a propeller; and means for actuating the propeller to propel the machine in air.

2. A flying machine comprising the com-

bination with a motor-cycle consisting of a wheel supported frame having steering means and means for driving the cycle upon the ground, of a wing frame mounted upon the frame of the cycle; a pair of collapsible wings mounted upon the sides of the wing frame and consisting of a plurality of ribs pivotally mounted upon the wing frame and a covering mounted over the ribs, said ribs being movable from a closed position substantially parallel to the sides of the frame to an open position extending the covering to form fan shaped wings extending outwardly from the sides of the frame; means connected between the outer ends of adjacent ribs for moving the covering into folds when the wings are collapsed and for bracing the ends of said ribs when the wings are extended; a propeller; means for actuating the propeller to propel the machine in air; steering means; and connections extending between said steering means and the steering mechanism of the cycle for steering the machine when in air.

3. A flying machine comprising the combination with a motor-cycle consisting of a wheel supported frame having means for driving the cycle upon the ground, of a wing frame mounted upon the frame of the cycle; a pair of collapsible wings mounted upon the sides of the wing frame and each consisting of a plurality of ribs pivotally mounted upon the wing frame and a fabric cover mounted over the ribs; a pair of cables connected to the ribs of each wing and arranged to be paid out or taken in to move the ribs between an inoperative closed position substantially parallel to the sides of the wing frame and an open diverging operative position extending the covering to form wings extending outwardly from the sides of the wing frame; and means for propelling the machine in the air.

4. A flying machine comprising the combination with a motor-cycle having a wheel supported frame, of a wing frame mounted upon the frame of the cycle; a pair of collapsible wings mounted upon the sides of the wing frame and each consisting of a main outer rib and a plurality of stay ribs pivotally mounted upon the frame and having a fabric covering mounted thereon; a pair of cables connected to each main rib of each wing for moving said rib between an inoperative position substantially parallel to the wing frame and an outwardly extending operative position, one of said cables being connected to the ends of the stay ribs; drums arranged to take in and pay out said cables; and means for propelling the machine in the air.

5. A flying machine comprising the combination with a motor-cycle having a wheel supported frame, of a wing frame mounted upon the frame of the cycle; a pair of collapsible wings mounted upon the sides of the wing frame and each consisting of a main outer rib and a plurality of stay ribs pivotally mounted upon the frame and having a fabric covering mounted thereon; cables connected to each main rib for moving said rib and the stay ribs between inoperative positions substantially parallel to the sides of the wing frame and outwardly diverging operative positions; hinged links connected between the ends of adjacent stays for displacing the fabric covering into parallel folds when the ribs are moved to inoperative position and for bracing the ends of the stays when in operative position; and means for propelling the machine in the air.

6. A flying machine comprising the combination with a motor-cycle consisting of a wheel frame having steering means and means for propelling the cycle along the ground, of a wing frame mounted upon the frame of the cycle and provided with longitudinally disposed forward and rearward extensions; collapsible wings mounted upon the wing frame and arranged to be moved between inoperative closed positions and operative extended positions; propelling means mounted upon the forward extension of the wing frame and connected with the cycle propelling means for propelling the machine in the air; and steering means mounted upon the rearward extension of the wing frame and comprising horizontal and vertical rudder portions fabricated to form an integral structure and mounted for universal movement upon the rearward extension of the wing frame; and connections extending between the rudder structure and the steering means of the cycle for actuating said rudder structure to steer the machine when in the air.

7. A flying machine comprising the combination with a motor-cycle consisting of a wheel supported frame having a pivotally movable fork forming a mounting for a wheel and a handle bar connected to the fork for moving the same to steer the cycle along the ground, of a wing frame mounted upon the frame of the cycle; wings mounted upon the wing frame; steering means mounted upon the rearward end of the wing frame and comprising horizontal and vertical rudders secured together and mounted for universal movement upon the frame; cables connected between the steering means and the handle bars for moving the rudders about a vertical axis when the handle bars are moved to turn the steering fork; and cables connected between the rudders and the handle bar for moving the rudder about a horizontal axis, the handle bar being arranged to be moved pivotally about a horizontal axis independently of the pivotal movement of the steering fork; and means for propelling the machine along the ground or in the air.

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8. A flying machine comprising the combination with a motor-cycle consisting of a wheel supported frame having a pivotally movable fork forming a mounting for a wheel and a handle bar connected to the fork for moving the same to steer the cycle along the ground, of a wing frame mounted upon the frame of the cycle; wings mounted upon the wing frame; steering means mounted upon the rearward end of the wing frame and comprising horizontal and vertical rudders secured together and mounted for universal movement upon the frame; cables connected between the steering means and the handle bars for moving the rudders about a vertical axis when the handle bars are moved to turn the steering fork; and cables connected between the rudders and the handle bar for moving the rudder about a horizontal axis, the handle bar being arranged to be moved pivotally about a horizontal axis independently of the pivotal movement of the steering fork; means for propelling the machine along the ground or in the air; and a stabilizing plane rigidly secured upon the forward end of the wing frame.

9. A flying machine comprising the combination with a motor-cycle consisting of a wheel supported frame having a pivotally movable fork forming a mounting for a wheel and a handle bar connected to the fork for turning said fork and also arranged to be moved pivotally upon a horizontal axis independently of the turning of the fork, of a wing frame mounted upon the frame of the cycle; a pair of collapsible wings mounted upon the wing frame; means for moving the wings between closed inoperative positions substantially parallel to the sides of the wing frame and extended operative positions spreading outwardly from the sides of the frame to form planes; steering means mounted upon the rearward end of the wing frame and comprising a pair of horizontal rudders and a vertical rudder rigidly secured between the horizontal rudders, said rudders being mounted for universal movement; cables connected between the rudders and the handle bars for moving the rudders about a vertical axis when the handle bar is moved to turn the steering fork; cables connected between the rudders and the handle bar for moving the rudders about a horizontal axis when the handle bar is turned upon its horizontal axis; a power motor mounted upon the cycle frame; means driven by the motor for propelling the machine along the ground; a propeller; and means connected between the motor and the propeller for actuating said propeller to propel the machine in the air.

10. In a flying machine, the combination with a motor-cycle frame, of a wing frame mounted upon the cycle frame and provided with an open circular portion over the cycle frame, said portion having arcuate slots upon opposite sides of said frame; a main wing rib mounted upon each side of the wing frame and having means engaging the arcuate slots formed in said wing frame for supporting said ribs in closed inoperative position along the sides of the frame and in outwardly extended operative position; a plurality of stay ribs pivotally mounted upon each side of the frame; a fabric covering mounted over the ribs; and means for spreading the ribs from inoperative positions along the sides of the frame to outwardly diverging relation to extend the covering.

11. In a flying machine, the combination with a motor-cycle frame, of a wing frame mounted upon the cycle frame and provided with an open circular portion over the cycle frame, said portion having arcuate slots upon opposite sides of said frame; a main wing rib mounted upon each side of the wing frame and having means engaging the arcuate slots formed in said wing frame for supporting said ribs in closed inoperative position along the sides of the frame and in outwardly extended operative position; a plurality of stay ribs pivotally mounted upon each side of the frame; a fabric covering mounted over the ribs; means for spreading the ribs from inoperative positions along the sides of the frame to outwardly diverging relation to extend the covering; and means connected between the ends of the ribs for bracing said ends when in extended positions and for displacing the covering into folds when moved to closed position.

12. In a flying machine, the combination with a motor-cycle frame, of a wing frame mounted upon the motor-cycle frame; a pair of collapsible wings mounted upon the sides of the wing frame, said wings each comprising a main rib and a plurality of stay ribs pivotally mounted upon the frame and a fabric covering mounted over the ribs; cables connected to the main ribs for moving said ribs from inoperative position along the side of the wing frame to outwardly extending operative position; cables connected to the ends of the main ribs and the stay ribs for moving the ribs to inoperative positions along the sides of the wing frames; and means for paying out or taking in the cables to extend or collapse the wings.

13. In a flying machine the combination with a motor-cycle frame, of a wing frame mounted upon the motor-cycle frame; a pair of wings mounted upon the sides of the wing frame, said wings each comprising a main rib and a plurality of stay ribs pivotally mounted upon the frame and a fabric covering mounted over the ribs; cables connected to the main ribs for moving said ribs from inoperative position along the sides of the wing frame to outwardly extending operative position; cables connected to the ends of the main ribs and the stay ribs for moving the

ribs to inoperative positions along the sides of the wing frames; winding drums arranged to take in and pay out the cables; and means for actuating the drums simultaneously and at different speeds to extend or collapse the wings.

14. In a flying machine, the combination with a motor-cycle frame of a wing frame mounted upon the cycle frame; a pair of wings mounted upon the sides of the wing frame, said wings each comprising a main rib and a plurality of stay ribs pivotally mounted upon the frame and a fabric covering mounted over the stay ribs; means detachably connecting the covering with the main rib when in extended position; and means for moving the ribs between inoperative positions along the sides of the wing frame and operative extended positions.

15. A flying machine comprising the combination with a motor-cycle consisting of a wheel supported frame having means for driving the cycle upon the ground, of a wing frame mounted upon the frame of the cycle; a pair of collapsible wings mounted upon the sides of the wing frame and each consisting of a main rib and a plurality of stay ribs all independently pivoted upon the sides of the wing frame and movable from collapsed positions substantially parallel to the sides of the wing frame to extended operative positions outwardly diverging from the sides of said frame, and a fabric covering mounted over the ribs; a cable connected to each main rib; a drum adapted to receive said cables and operable to take in said cables simultaneously to move said main ribs from collapsed position to extended position; a second cable connected to each main rib and to the ends of each stay rib of each wing; and a drum adapted to take in said cables simultaneously to move the ribs from extended positions to collapsed positions.

16. A flying machine comprising the combination with a motor-cycle consisting of a wheel supported frame having means for driving the cycle upon the ground, a wing frame mounted upon the frame of the cycle; a pair of collapsible wings mounted upon the sides of the wing frame and each consisting of a main rib and a plurality of stay ribs all independently pivoted upon the sides of the wing frame and movable from collapsed positions substantially parallel to the sides of the wing frame to extended operative positions outwardly diverging from the sides of said frame, and a fabric covering mounted over the ribs; a cable connected to each main rib; a drum adapted to receive said cables and operable to take in said cables simultaneously to move said main ribs from collapsed position to extended position; a second cable connected to each main rib and to the ends of each stay rib of each wing; and a drum adapted to take in said cables simultaneously to move the ribs from extended positions to collapsed positions; and means for actuating the drums simultaneously in opposite directions to pay out one pair of cables as the other pair of cables is being taken in.

17. In a flying machine, a wing frame; a pair of collapsible wings mounted upon the sides of the wing frame, said wings each comprising a main rib and a plurality of stay ribs each independently pivoted upon the frame and movable from collapsed position substantially parallel to the sides of the frame to operative extended positions outwardly diverging from the sides of the frame; a flexible covering mounted over the stay ribs; and a flange formed upon each main rib to detachably engage the adjacent edge of the covering and stretch said covering taut when the wing is extended.

18. In a flying machine, a wing frame; a pair of collapsible wings mounted upon the sides of the wing frame, said wings each comprising a main rib and a plurality of stay ribs each independently pivoted upon the frame and movable from collapsed position substantially parallel to the sides of the frame to operative extended positions outwardly diverging from the sides of the frame; a flexible covering mounted over the stay ribs; a flange formed upon each main rib to detachably engage the adjacent edge of the covering and stretch said covering taut when the wing is extended; and foldable means connected to the ends of adjacent ribs to brace the ends of said ribs when extended and to move the covering into regular folds when the wings are moved to collapsed positions.

19. In a flying machine, a wing frame; a pair of collapsible wings mounted upon the sides of the wing frame, said wings comprising a plurality of ribs pivotally mounted upon the sides of the frame and movable from collapsed position substantially parallel to the sides of the frame to extended operative position outwardly diverging from the sides of the frame; a flexible covering mounted over the ribs; and pivotally connected links mounted between the ends of adjacent ribs to brace said ribs when in extended position and to displace the covering into regular folds when the wings are collapsed.

20. In a flying machine, the combination with a motor-cycle frame, of a wing frame mounted upon the motor-cycle frame and provided with forward and rearward extensions and an open circular central portion arranged immediately over the cycle frame and having arcuate slots formed therein; a pair of main wing ribs provided with mounting means secured at spaced points thereon and engaging the arcuate slots; a plurality of stay ribs pivotally mounted upon the circular central portion of the frame, said

main ribs and stay ribs being movable from collapsed positions substantially parallel to the sides of the frame to operative extended positions outwardly diverging from said circular portion; a flexible covering mounted upon the ribs of each wing; and means connected to the main rib of each wing for moving the wings to extended or collapsed positions as desired.

In witness whereof we hereunto set our signatures.

EZZIO FRANCESCONI.
VALENTINO L. BIANCHI.