C. F. KOHLRUSS.

FLYING MACHINE.

APPLICATION FILED SEPT. 25, 1909.

1,005,232.

Patented Oct. 10, 1911.

3 SHEETS—SHEET 1.

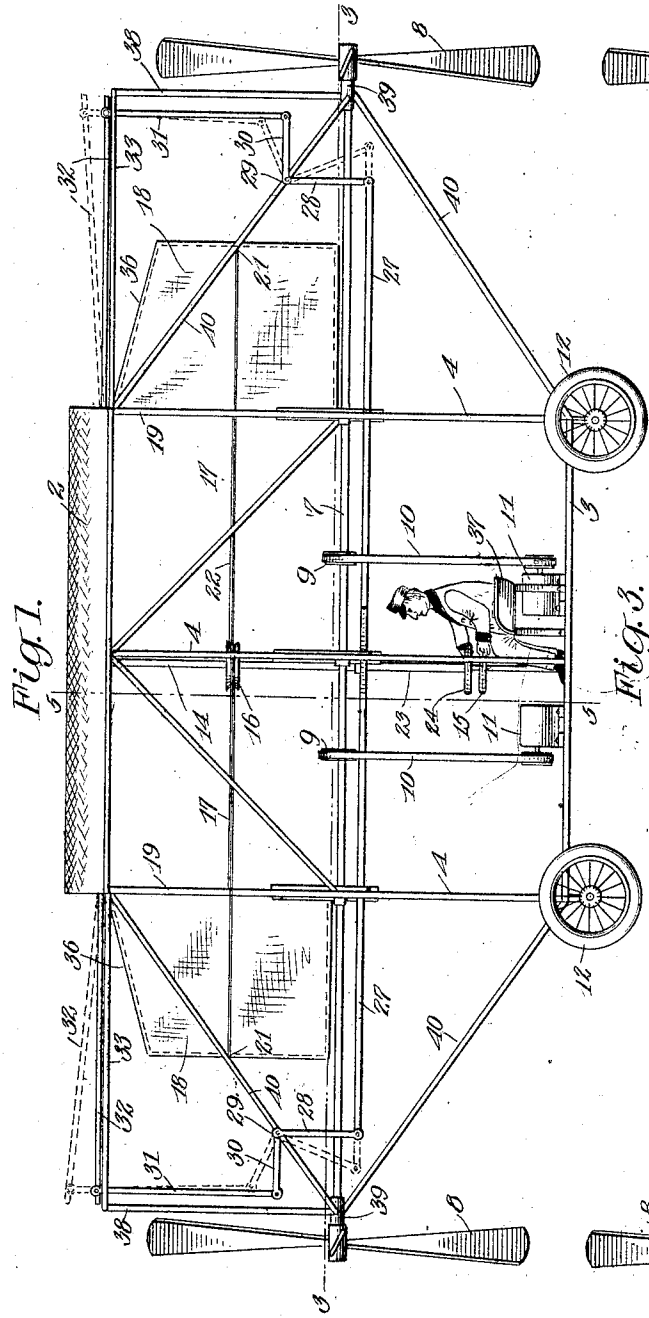

Fig. 1.

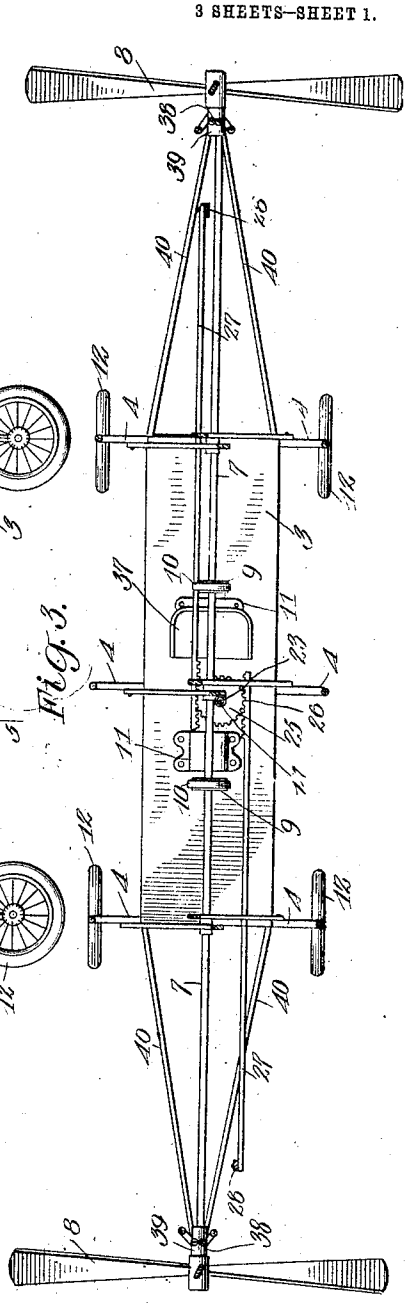

Fig. 3.

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3 SHEETS—SHEET 2.

Fig. 2.

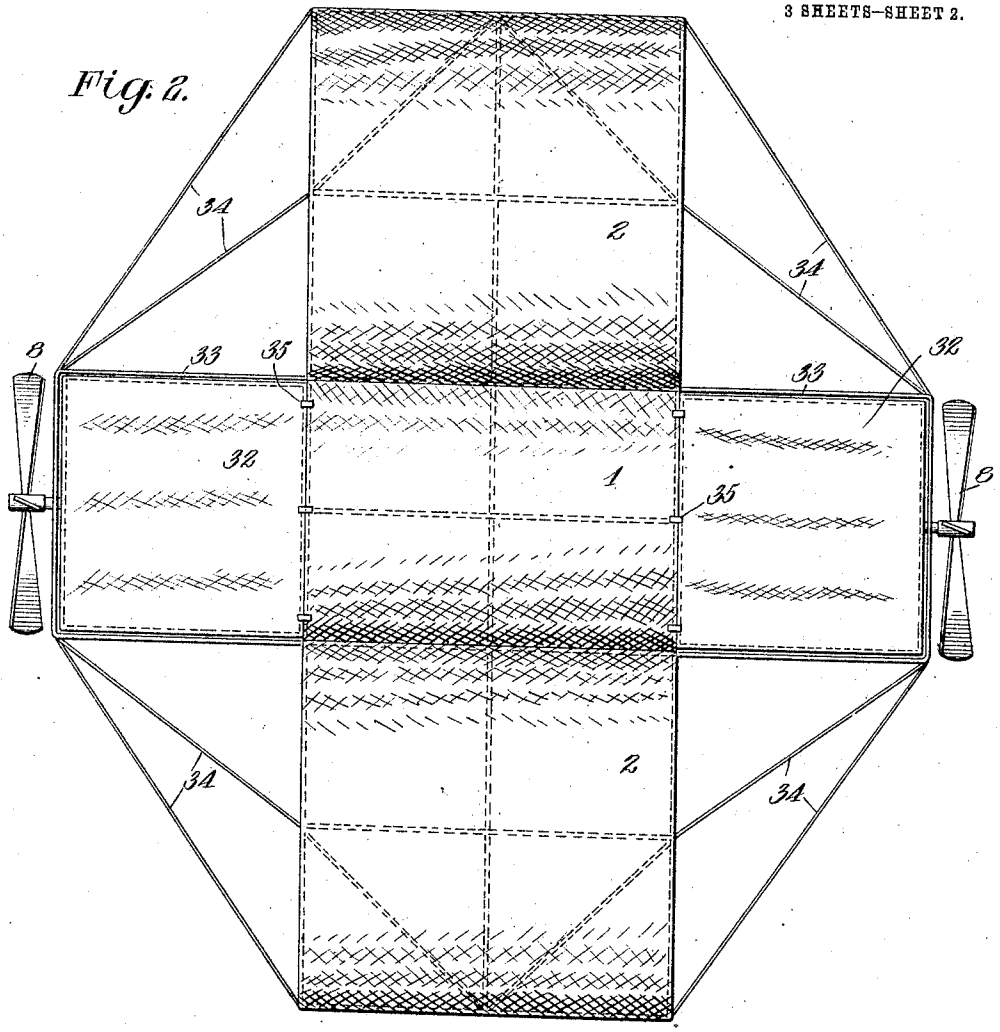
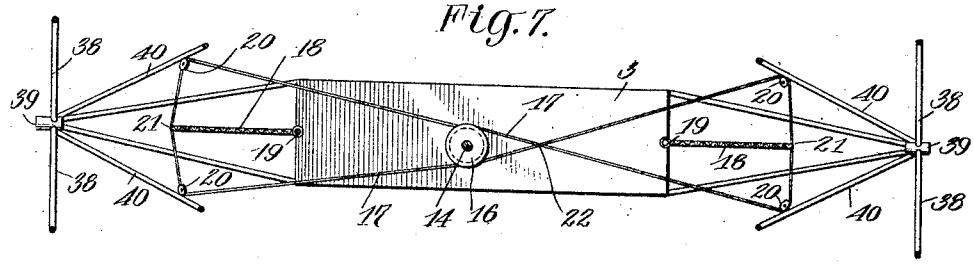


Fig. 7.



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3 SHEETS—SHEET 3.

Fig. 4.

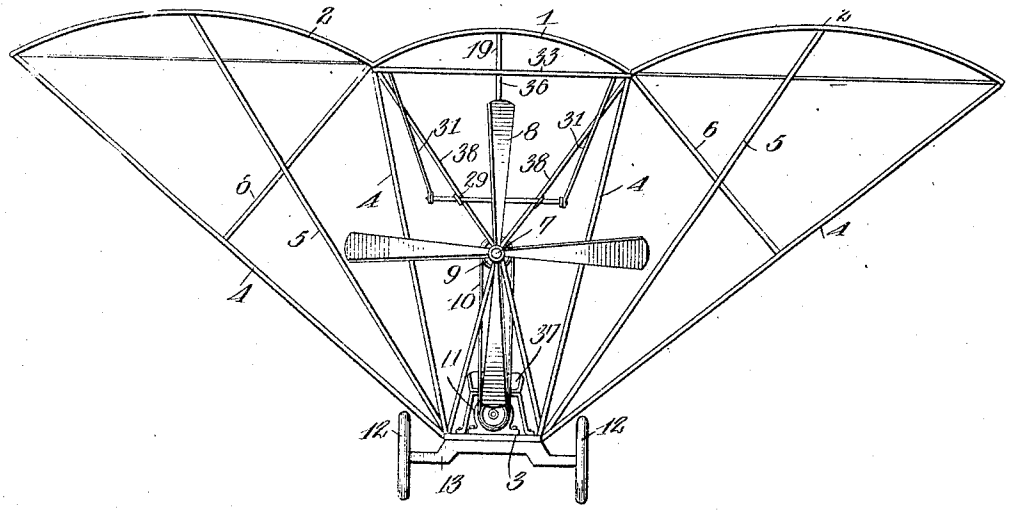


Fig. 5.

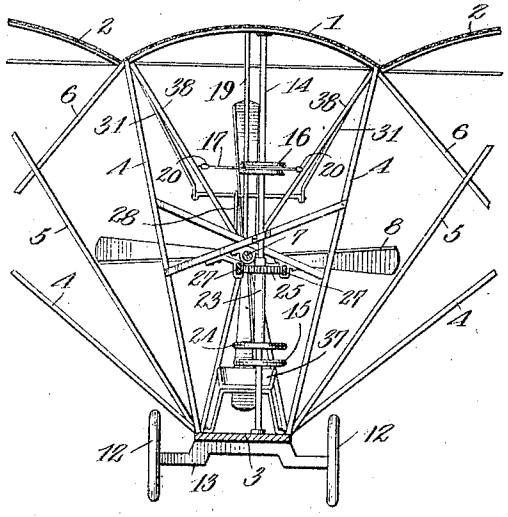
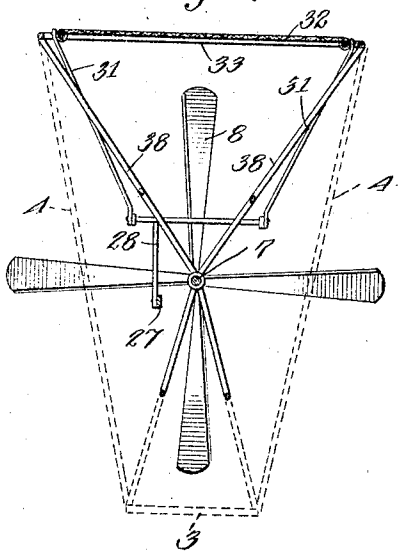


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

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FLYING-MACHINE.

1,005,232. Specification of Letters Patent. Patented Oct. 10, 1911.

Application filed September 25, 1909. Serial No. 519,653.

To all whom it may concern:

Be it known that I, CHRISTIAN F. KOHLRUSS, a citizen of the United States, and a resident of Augusta, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in Flying-Machines, of which the following is a specification.

My invention is an improvement in flying machines, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

The object of the invention is to provide a device of the character specified, wherein the weight will be below and at the center of the supporting surface so that the stability of the device will be increased, and a parachute effect will be obtained.

Referring to the drawings forming a part hereof Figure 1 is a side view of the improvement. Fig. 2 is a plan view. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a front view. Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a section on the line 6—6 of Fig. 1 and Fig. 7 is a sectional view showing the manner of operating the rudders.

The embodiment of the invention shown in the drawings consists of a central plane 1, and side planes 2, each of which is arched from side to side as shown in Fig. 4, and the said planes are suitably connected to a car 3 by braces 4, the said braces extending from the edges of the plane and connecting with the sides of the car. Additional braces 5 lead from the center of the outer planes 2 to the edges of the car, and braces 6 lead from the inner edges of the outer planes to the outermost braces 4 as clearly shown in Fig. 4.

As will be observed from an inspection of Figs. 1 and 4 the car is some distance below the planes, and is directly beneath the central plane 1 which is of lesser width than the outer planes 2, and a propeller shaft 7 is arranged intermediate the car and the central plane, and at the approximate center of the resistance of the machine. The shaft is provided at each end with a propeller 8, and near its center with pulleys 9 which are connected by belts 10 with a motor or motors 11 on the car and near the center thereof. The car is supported by wheels 12, which are journaled on the axles 13 secured to the ends of the car as shown in Figs. 4 and 5. A vertical shaft 14 is arranged at approximately the center of the car, the said shaft being journaled in the car and in the framework, and a hand wheel 15 is secured thereto for rotating the same. Near the upper end of the shaft, a pulley 16 is secured, and over the pulley pass ropes 17, which extend forwardly and rearwardly to the front and rear vertical rudders 18. Each of the rudders 18 is journaled as at 19 on the frame, and the ropes 17 pass over pulleys 20 secured to the braces, to a connection with the free end of the rudders as at 21. One of the ropes 17 is crossed as shown at 22 in Fig. 7, so that when the shaft 15 is turned, the rudders are oscillated in the same direction.

A hollow shaft 23 is journaled on the shaft 14, and is provided with a hand wheel 24 for convenience in manipulating the same. Near its upper end the hollow shaft is provided with a gear wheel 25, which meshes on each side with racks 26 and the racks 26 form the links 27 which extend forwardly and rearwardly to a connection with one arm 28 of an elbow lever pivoted to the frame-work as at 29 and the other arm 30 of the elbow lever is connected by links 31 with the sides of horizontal rudders 32. The rudders 32 are encircled by a substantially square frame 33, which is braced to the frame-work by braces 34, and the rudder is hinged within the frame as at 35, the outer end thereof being free, so that the rudder may be raised and lowered as shown in dotted lines in Fig. 1.

The upper edges of the vertical rudders 18 are cut away as at 36, to permit the horizontal rudders to move downwardly below the frame as shown in Fig. 1.

It will be evident that when the hollow shaft is oscillated, the meshing of the gear wheel with the racks on the links 27 will move said links in opposite directions, so that when the shaft is oscillated the rudders will be moved simultaneously in the same direction. As for instance, when the shaft is oscillated to move the links outwardly away over each other, the rudders will be elevated as indicated by dotted lines in Fig. 1, and when the shaft is oscillated in the opposite direction the rudders will be lowered.

A seat 37 for the operator is arranged above the rear motor 11 and braces 38 connect the outer ends of the frame 33 with the bearings 39 in which the propeller shaft is journaled. The said bearings are also connected by the inclined braces 40 with the framework proper of the machine.

It will be observed that the weight is in the exact center of the supporting surface, and below the same, thereby greatly increasing the stability of the device, and greatly lessening the liability of upsetting by unexpected gusts of wind. The arrangement of the weight also gives a parachute effect to the device, so that in case the motor or motors should stop for any reason, the planes would permit the machine to settle down gradually to the earth in the manner of a parachute.

The arrangement of the propellers, one in front and one at the rear of the machine permits it to move with equal facility in either direction, and as the propeller shaft is in the approximate center of resistance of the machine, a maximum of efficiency is attained for the power exerted.

Should an engine become disabled, the other or others will be sufficient to run the machine, and one or more may be used. The arrangement of the rudders in pairs, and acting simultaneously and in the same direction permits the machine to turn in a very short distance, and to rise or descend very quickly.

The steering device for the machine is at the vertical center of the same, with the wheels in convenient position for the operator and one directly above the other, so that each can be operated with one hand. It will be understood however that they may be arranged otherwise if desired.

It will be understood that either member of either pair of rudders may be dispensed with, and that the arrangement of the engines and operator's seat is a matter of convenience only, and seats for passengers may be provided, or lockers for freight. The arrangement of the propellers also aids the machine to maintain its equilibrium while in motion.

I claim:

1. A flying machine comprising a central and side planes arched from side to side, a car below the central plane and connected to all the planes, a propeller shaft arranged parallel with the longitudinal center of the central plane, and at approximately the center of resistance, a propeller on each end thereof, a plurality of motors on the car and connected to the propeller shaft, a horizontal rudder at each end of the central plane, a frame to whose inner side the rudder is hinged, a vertical rudder at each end of the central plane, and below the adjacent horizontal rudder, the upper edge of each of said rudders being inclined downwardly and outwardly for the purpose specified, a vertical shaft at the vertical center of the central plane and extending between said plane and the car, a connection between said shaft and the vertical rudders, a hollow shaft journaled thereon, a connection between said shaft and the horizontal rudders, and a wheel for operating each shaft.

2. A flying machine comprising a central and side planes arched from side to side, a car below the central plane and connected to all the planes, a propeller shaft arranged parallel with the longitudinal center of the central plane, and at approximately the center of resistance, a propeller on each end thereof, a motor connected with the propeller shaft, a horizontal rudder at each end of the central plane, a frame to whose inner side the rudder is hinged, a vertical rudder at each end of the central plane, and below the adjacent horizontal rudder, the upper edge of each of said rudders being inclined downwardly and outwardly for the purpose specified, a vertical shaft at the vertical center of the central plane and extending between said plane and the car, a connection between said shaft and the vertical rudders, a hollow shaft journaled thereon, a connection between said shaft and the horizontal rudders, and a wheel for operating each shaft.

3. A flying machine comprising a central and side planes, a car below the central plane and connected to all the planes, a propeller shaft arranged parallel with the longitudinal center of the central plane, and midway between the car and the plane, a propeller on each end thereof, a motor connected with the propeller shaft, a horizontal rudder at each end of the central plane, a frame to whose inner side the rudder is hinged, a vertical rudder at each end of the central plane, and below the adjacent horizontal rudder, the upper edge of each of said rudders being inclined downwardly and outwardly for the purpose specified, a vertical shaft at the vertical center of the central plane and extending between said plane and the car, a connection between said shaft and the vertical rudders, a hollow shaft journaled thereon, a connection between said shaft and the horizontal rudders, and a wheel for operating each shaft.

4. A flying machine, comprising a central and side plane, a car below the central plane, and supported by all the planes, a rudder at each end of the central plane mounted on a horizontal axis transverse to the plane, a rudder below each of the first-named rudders and mounted for swinging movement on a vertical axis approximately perpendicular to the center of the axis of the adjacent first-named rudder, means for simultaneously moving the first-named rudders in the same direction, means for simultaneously moving the last-named rudders in the same direction, a propeller shaft arranged below the central plane and between the plane and the car, a propeller on each end of the shaft, and means for operating said propeller shaft.

5. A flying machine, comprising a central and side plane, a car below the central plane, and supported by all the planes, a rudder at each end of the central plane, mounted on a horizontal axis transverse to the plane, a rudder below each of the first-named rudders and mounted for swinging movement on a vertical axis approximately perpendicular to the center of the axis of the adjacent first-named rudder, means for simultaneously moving the first-named rudders in the same direction, and means for simultaneously moving the last-named rudders in the same direction.

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Witnesses:
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WM. J. STEVENS.