F. W. WUERTH.

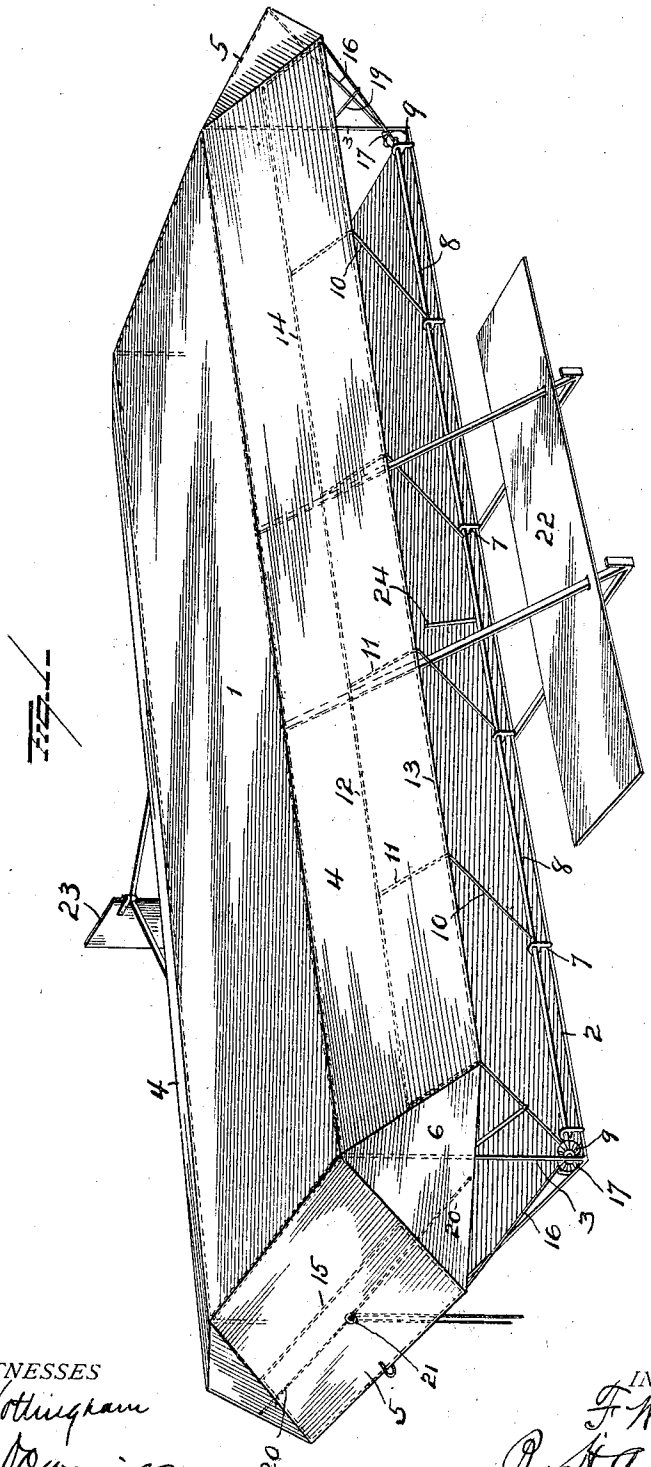
ATTACHMENT FOR AEROPLANES.

APPLICATION FILED MAR. 15, 1910.

961,925.

Patented June 21, 1910.

2 SHEETS—SHEET 1.



WITNESSES

E. L. Nottingham

G. F. Downing.

INVENTOR

F. W. Wuerth

By H. A. Seymour

Attorney

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2 SHEETS—SHEET 2.

Fig. 2.

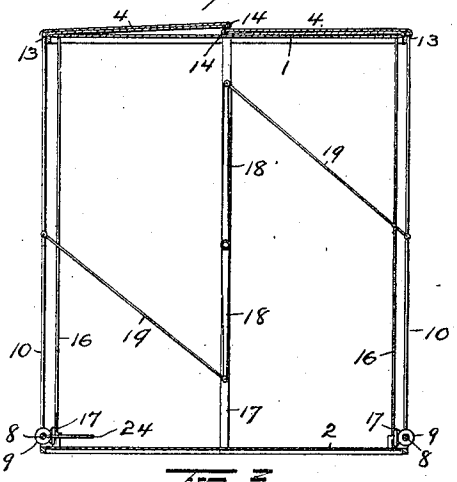


Fig. 3.

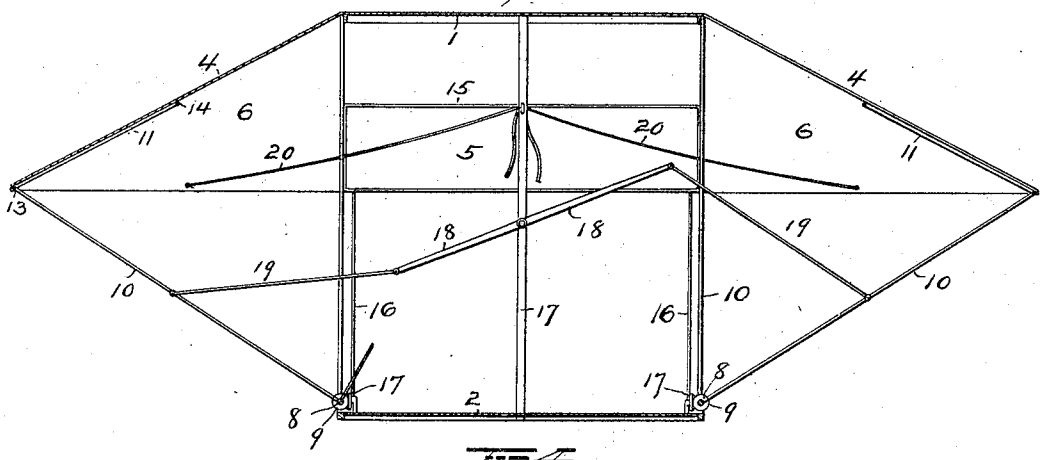


Fig. 4.

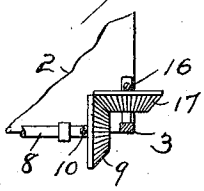


Fig. 5.

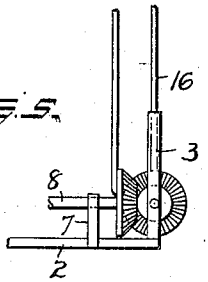
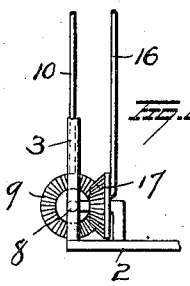


Fig. 6.



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Attorney

UNITED STATES PATENT OFFICE.

FREDERICK W. WUERTH, OF CINCINNATI, OHIO.

ATTACHMENT FOR AEROPLANES.

961,925. Specification of Letters Patent. Patented June 21, 1910.

Application filed March 15, 1910. Serial No. 549,527.

To all whom it may concern:

Be it known that I, FREDERICK W. WUERTH, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Attachments for Aeroplanes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in attachments for aeroplanes,—the object of the invention being to provide means whereby the descent of an aeroplane can be rendered safe in case of accident.

A further object is to so construct an attachment for the purpose specified that it can be so disposed when not in use as not to interfere with the normal operation of the aeroplane and so that it can be quickly brought into service in case of necessity.

With these objects in view the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawing, Figure 1 is a perspective view showing an aeroplane equipped with my improvements. Fig. 2 is a transverse sectional view showing the positions of the attachments when not in service. Fig. 3 is a similar view showing the position of the safety devices in operative relation to the aeroplane, and Figs. 4, 5 and 6 are detail views showing the gearing by means of which my improved safety attachments can be manipulated.

In the drawings I have illustrated my improvements as applied to a bi-plane but they are equally applicable to a mono-plane or to a machine employing more than two planes.

1—2 represent superimposed planes supported by suitable framework 3. Wings 4—4 of comparatively light canvas material are secured at their upper edges to the longitudinal edges of the upper plane 1 and similar wings 5—5 are secured at their upper edges to the ends of said upper plane 1. The ends of the wings 4 are connected with the ends of the wings 5 by means of triangular corner pieces 6 which are also of light flexible material.

Along each longitudinal edge of the lower plane 2, a series of bearings 7 is located for the accommodation of shafts 8,—each of which is provided at its respective ends with beveled gears 9. To each shaft 8 several L-shaped arms 10 are secured and the upper ends of the members 11 of these arms are connected by a longitudinally disposed rod 12. The lower ends of the members 11 of arms 10 are also connected by means of a rod 13. The members 11 of the arms 10 and the rods 12 and 13 thus form a rectangular frame 14 to which the lower portion of flexible wings 4 is secured. Similar frames 15 are secured to the lower portions of the end wings 5 and these frames are connected by means of arms 16 with beveled gears 17 mounted in the framework and meshing with the gears 9 on the longitudinal shafts 8.

An upright 17 is located between the planes 1 and 2 and to this upright, a lever 18 is pivotally supported between its ends. The respective ends of this lever are connected by means of rods 19 with the frames 14 at respective sides of the machine. The corner members 6 have connected thereto, cords 20 which extend inwardly and pass through suitable eyes 21,—the free ends of these cords being permitted to hang in convenient reach of the operator.

The machine will be provided with the usual head plane 22 and a rudder 23, but as these features do not constitute any portion of my present invention, further allusion thereto is considered unnecessary.

One of the shafts 8 is provided with a lever or operating arm 24. By moving this arm, the shaft to which it is secured will be rocked to move the frame 14 connected with said shaft and this motion will be transmitted through the medium of the lever 18 and connecting rods 19, to the frame 14 at the opposite side of the machine. As both of these shafts 8 are connected by means of gearing 9—17 with the end frames 20, said end frames will be moved when the longitudinal frames 14 are moved.

When the wings 4 and 5 are in the positions shown in Fig. 1 they will operate somewhat after the manner of a parachute to retard the descent of the machine and prevent the latter from turning over in case of accident to the operating or controlling mechanism of the machine. Under normal conditions however, the wings 4—5 as well as the corner pieces 6 will be so disposed as not to interfere with the navigating of the machine. To accomplish this, the lever 24 will be moved as above explained to impart mo-

tion to the frames connected with the several wings so as to move the latter upwardly and over the top of the upper plane 1. During such movement of the wings they will become folded along the upper rods of the frames 14—15 and will be caused to lie flat in such folded condition upon the top of the plane 1, after the manner shown in Fig. 2. In order to insure the close folding of the corner pieces 6 when the wings are raised over the top of plane 1, the operator will pull upon the cords 20 so as to draw said corner pieces inwardly.

It is apparent that if, during the normal operation of the aeroplane, some accident should occur, the wings can be quickly brought into operative position as shown in Fig. 1 by manipulating the lever 24 to reverse the movements of the wings above described.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. The combination with an aeroplane, of flexible wings connected therewith and adapted to project outwardly therefrom, and means for raising said wings and disposing them upon the aeroplane.

2. The combination with an aeroplane, of flexible wings attached at their upper edges thereto, means for supporting said wings in inclined positions, and means for collapsing said wings and disposing them upon the aeroplane.

3. The combination with an aeroplane, of flexible wings secured at their upper edges thereto, frames connected with said wings, means for supporting said frames to dispose the wings in inclined positions outwardly from the body of the aeroplane, means operating to manipulate said supporting means to collapse the wings and dispose them upon the aeroplane.

4. The combination with an aeroplane, of a series of wings attached at their upper edges thereto, frames connected with the lower portions of said wings, arms for supporting said frames to dispose the wings in inclined positions outwardly from the body of the machine, gearing connected with said arms, and means for operating said gearing to move said frames for collapsing the wings or for distending them.

5. The combination with an aeroplane, of flexible wings attached at their upper edges thereto, frames connected with the lower portions of said wings, a lever pivoted between its ends between the planes, rods connecting said lever with the frames at respective sides of the machine, and means for applying power to one of said frames to collapse or distend the wings at both sides of the machine.

6. The combination with an aeroplane, of flexible wings secured at their upper edges to the sides and ends of the machine, frames secured to the lower portions of the side wings, shafts at the lower longitudinal edges of the machine, arms connecting said shafts with the frames of the longitudinal wings, gears at respective ends of said shafts, gears meshing with the last mentioned gears and located at the ends of the machine, frames secured to the end wings, arms connecting these frames with the end gears, a lever pivoted between its ends, rods connecting said lever with the frames of the longitudinal wings, and an operating arm or lever secured to one of said shafts.

7. The combination with an aeroplane, of flexible wings secured at their upper edges to the end and longitudinal edges of the machine, flexible corner pieces connecting the longitudinal wings with the end wings, cords connected with said corner pieces for collapsing them, means for supporting said wings in inclined positions outwardly from the body of the machine, and means for operating the supporting means for collapsing the wings over the upper plane of the machine and for distending said wings.

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

FREDERICK W. WUERTH.

Witnesses:
EMIL JOE KEMPF, Jr.,
F. J. REECE.