W. F. Quinby.

Flying Mach.

No. 95,513. Patented Oct. 5, 1869.

Fig. 6.

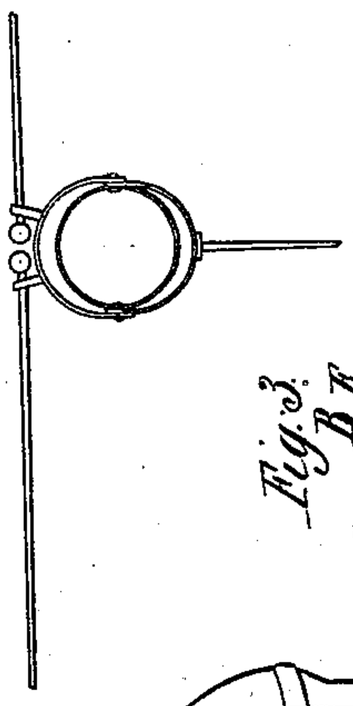

Fig. 3.

Fig. 5.

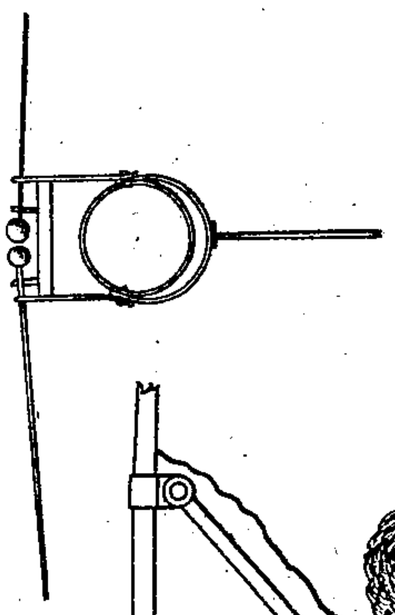

Fig. 1.

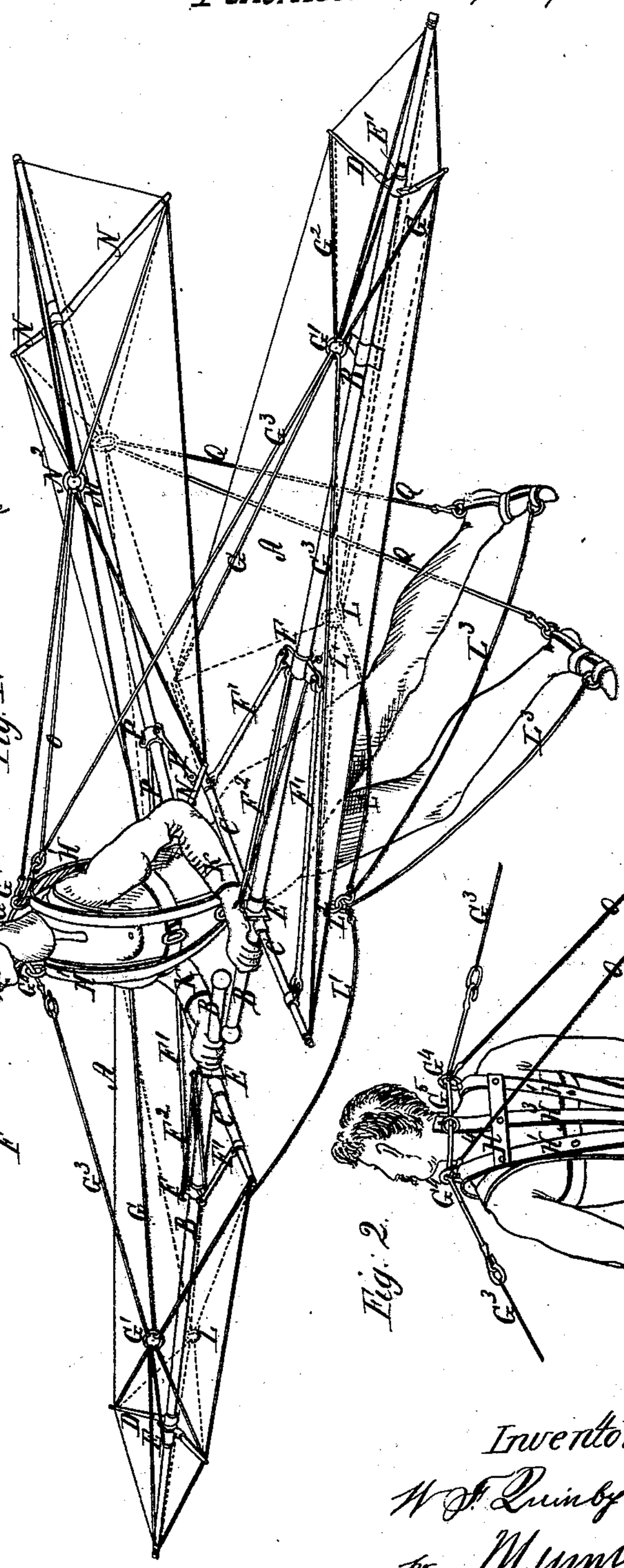

Fig. 4

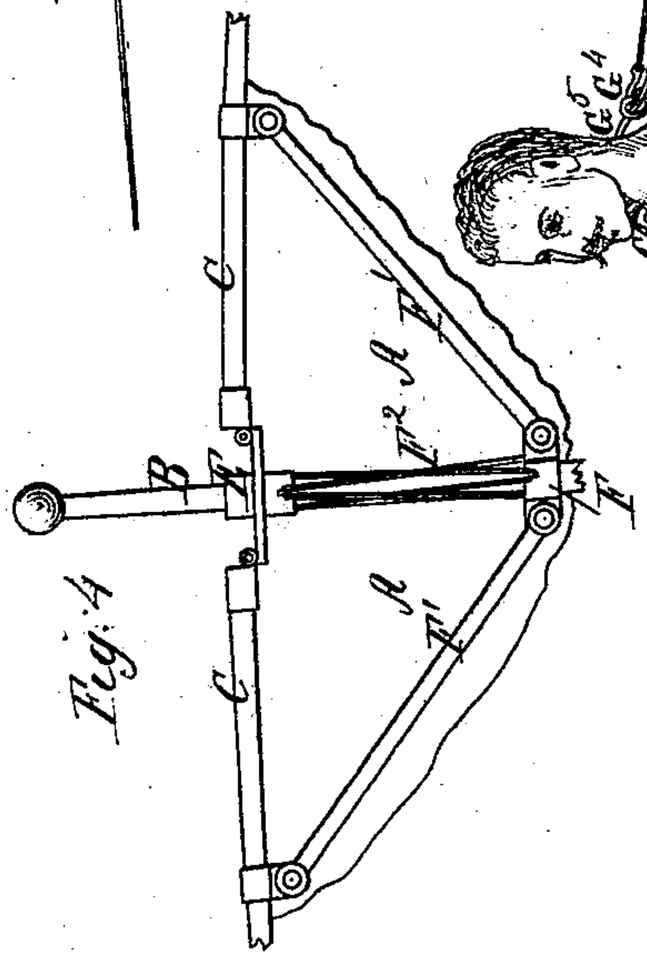

Fig. 2.

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UNITED STATES PATENT OFFICE.

W. F. QUINBY, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN FLYING-MACHINES.

Specification forming part of Letters Patent No. **95,513**, dated October 5, 1869.

To all whom it may concern:

Be it known that I, W. F. QUINBY, of Wilmington, in the county of New Castle and State of Delaware, have invented a new and Improved Flying-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in flying apparatus, intended to provide an arrangement of temporary sails resembling in some respects the wings of birds in their construction and operation, which may be readily connected to the body of a person by means of a cuirass fitted to the body, and made of metallic straps formed and adapted to assist the operator to support the wings, and at the same time shield him from the shocks and jars due to the operation of the wings, as will be more fully described on reference to the accompanying drawings, wherein—

Figure 1 represents a perspective view of a person flying through the air with my improved apparatus. Figs. 2 to 6 represent detail views.

Similar letters of reference indicate corresponding parts.

The apparatus consists, essentially, of two side wings and one dorsal wing attached to the body in a manner to permit of their being actuated freely to perform the function of wings, and in certain details of rigging for operating them. The said wings A consist of one long rod, B, two or more shorter ones, C D, securely fastened across it, the one C near the inner ends, and the others near the points of the wings, and a webbing of canvas or other substance impervious to air spread thereon. The rods C and B are so disposed that the wings have greater breadth in the rear of the long rods than on the front. The said transverse rods may be made of one piece and rigidly connected to the long arms or in two pieces and hinged, which latter is the arrangement I prefer, and have represented at E E′. When so hinged the wings are spread and closed by slides supporting arms in a manner somewhat similar to that of an umbrella, the arms C being connected to sliding sleeves F by jointed braces F′, the said sleeves being held in the position to extend the arms by cords F^2, fastened to the fixed stocks E.

The long rods should be tapered, with the heavy ends adjacent to the operator, and the inner transverse rods should be longer than the outer ones. The spreading of the inner transverse rods extend the outer ones by the tension of the canvas.

Cords G are attached to the ends of the rods C and passed through rings G′, through which similar cords, G^2, pass. Similarly connected to the ends of the transverse rods D, another cord, G^3, connects with each of the rings G′, passing through guide-rings supported at the shoulders in the top of a metallic cuirass, consisting of a semicircular metallic waistband, H, two shoulder-straps, H′, doubling over the shoulders, and connected at the front of the waist to a leather waistband, H^2, to which the strap H is secured. Another metallic strap, H^3, rises up at the center of the back from the waistband, and is connected to the others near the top by a transverse strap, H^4. This cuirass forms the essential means of connecting the whole apparatus to the body.

At the top of the back where the cord passes through the said guide-rings an elastic section, G^5, is introduced, which expands when the wings are pressed down in the act of flying, and by its recoil assists to raise them again. It also holds them in nearly a horizontal position. Other cords G^5 are connected to the outer ends of the long rods passing through the rings G′ and terminating at the point E′, where the short arms D are connected to the rods B. These cords, when maintained in a taut condition by the braces F, acting on the jointed transverse rods C, maintain the wings in the spread condition, as represented in the drawings.

The wings may be folded by disconnecting the cords F^2 from the point E and closing the transverse rods C down upon the main rods B. The larger ends of the main rods B project beyond the inner transverse rods, C, in front of the waist of the person, and are connected to the waist-belt by a double strap, I, which is swiveled to the waistband to permit it to rotate on its point of connection as the ends of the rods B rise and fall with a kind of opening and closing motion, permitting the said ends to lap each other, if greater length is preferred to obtain more leverage.

Sheaths K are applied to the forearm to form the means of suspending the wings therefrom by the cross-rods C, and serve as the fulcra whereon they oscillate.

The inner ends of the rods B are grasped by the hands, and the vibratory motion imparted to the wings thereby.

An arrangement of stay-cords is provided for the under side of the wings similar to that above described for the upper side, except that the rings L, wherein they center, are considerably nearer to the operator. The rings L, wherein the system of stay-cords below the rings are centered, are connected by cords L′ to a ring, L^2, suspended from the waistband by an elastic cord, and a cord, L^3, fastened at each end to the feet, passes through the said ring. By these upper and lower systems of cords, the one centering upon the back of the operator, and the other at the feet, full control of the wings is obtained under the motion imparted thereto by the hands, either to maintain them in the horizontal position represented in the drawings for soaring or when operating in the ordinary vibratory or beating motion.

The dorsal wing is composed of one long rod, M, and two or more transverse rods or bars, N N, similar to those of the side wings, except that one nearest the body is the shortest. The outer transverse rods are hinged in a manner to allow them to vibrate both in a vertical and horizontal plane. To prevent lateral motion in this wing, cords may be extended from the waist-belt to the ends of the extending-rods N′, if preferred.

Cords are arranged upon the upper side of the wing to support it in a manner very similar to those on the side wings, except that these cords are firmly secured to the ring N^2 to prevent lateral motion, and the cord which extends from the ring to the ends of the outer bow or transverse rods, N′, is elastic to allow the wings to close downward during an upward movement of the body. This wing is supported by a hinged joint of the end of the rod M to the cuirass at the center of the back, whereby cords extending from the ring N^2 to the cuirass at the points of the shoulders support it horizontally, or nearly so. The transverse rod N′ is connected by links P to a sliding tube, P′, on the rod M, and the inner end of the wing is extended by drawing the said sliding tube toward the body by cords, similarly to the arrangement of the inner ends of the side wings, and it is folded by sliding the tube outward when the cords are disconnected from the waistband. Like the side wings, this is also provided with a system of stay-cords on the under side, and they are connected by a cord, Q, with the heels of the operator, thereby enabling him to manipulate them with his feet. These wings may be readily detached from the body and folded away. In operation the person will make movements similar to those when swimming, thereby imparting to the side wings the motion of oars, which very closely resembles the motion of wings of birds.

The cords which support the side wings may be either secured to the shoulder-wings or pass through them, as shown in the drawings. In either case the wings balance each other.

I do not desire to limit myself to any particular form of wings, as they may be varied to a considerable extent without departing from the principle of my invention. For instance—the gaffs near the outer ends, which cause these wings to resemble the sails of vessels, may be dispensed with, when they will take the form of the common bow-kite, with the exception that the long rod does not cross the long bow at the center.

Instead of connecting the inner ends of the side wings to the belt by the strap-hinges, I may employ a semicircular metallic spring-guard hinged to the waist-belt, as represented in the detail, Fig. 6, and connect the ends of the wing-rods thereto in such a manner that the said spring-guard will rise and fall with them; or two straight bars may be jointed at the sides of the waistband and connected in front of the person by a transverse bar, to which the wing-rods may be connected.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The side wings, A, provided with the upper system of stay-cords, and supported from the shoulders and the arms, substantially as specified.

2. The side wings, A, provided with the lower system of stay-cords, and connected to the ring L^2, when the latter is suspended from the belt and connected to the feet, substantially as specified.

3. The dorsal wing hinged to the waist, supported from the points of the shoulders, and connected to the feet, substantially as specified.

4. The cuirass constructed and adapted for supporting the wings and protecting the body, substantially as specified.

5. The combination, with the rods B and the cuirass, of the double hinge I, swiveled to the said cuirass, substantially as specified.

6. The rods C and N, hinged to the long rods, and provided with the slides F P and connecting-rods, and arranged for spreading the wings, substantiully as specified.

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