W. H. BURTON AND C. J. WILKERSON.

AERIAL MAIL EXCHANGE.

APPLICATION FILED FEB. 1, 1919.

1,338,970.

Patented May 4, 1920.

2 SHEETS—SHEET 1.

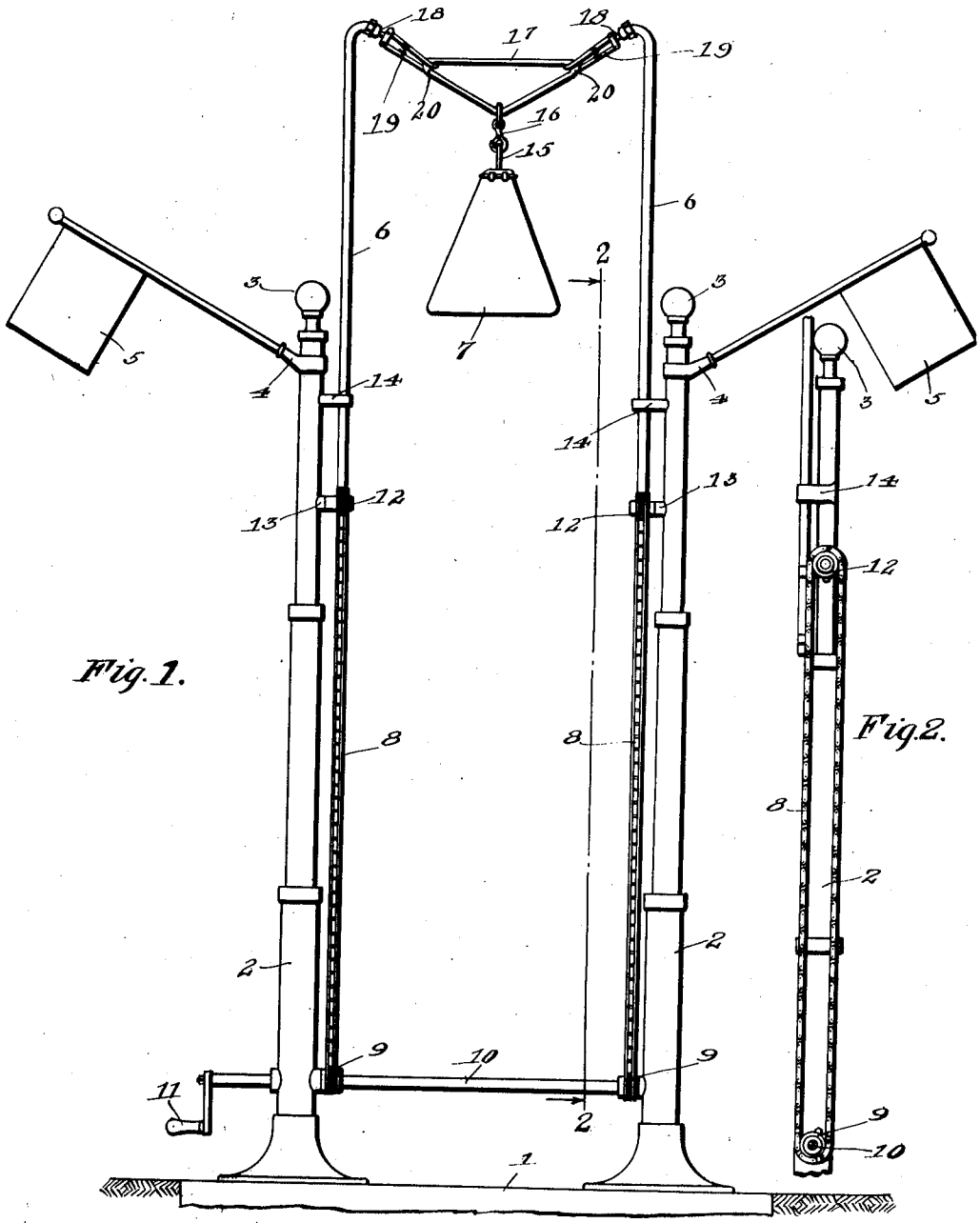


Fig. 1.

Fig. 2.

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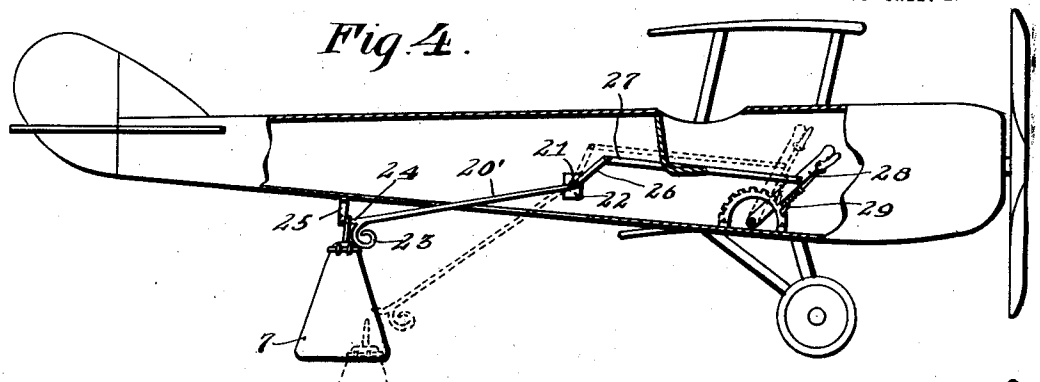
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Fig. 4.



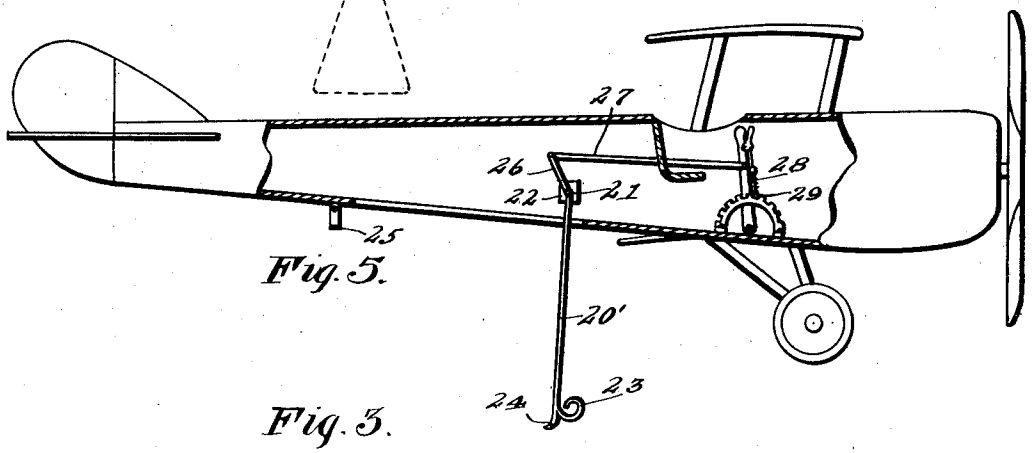
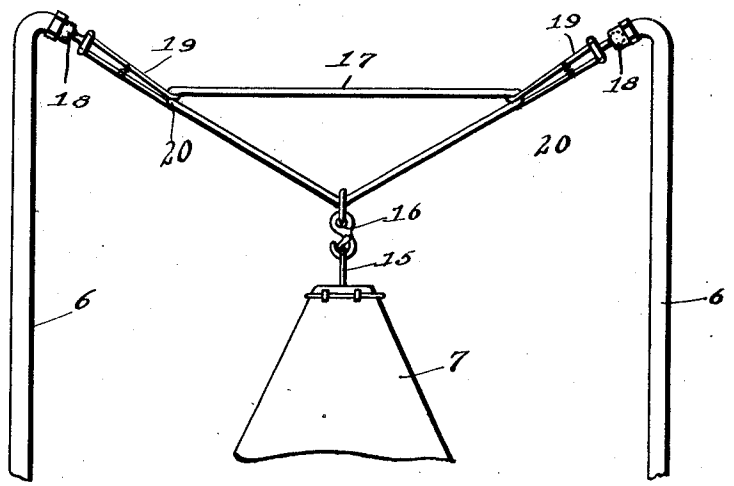


Fig. 5.

Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM H. BURTON AND CLAUD J. WILKERSON, OF EAST ST. LOUIS, ILLINOIS.

AERIAL-MAIL EXCHANGE.

1,338,970. Specification of Letters Patent. Patented May 4, 1920.

Application filed February 1, 1919. Serial No. 274,435.

To all whom it may concern:

Be it known that we, WILLIAM H. BURTON and CLAUD J. WILKERSON, citizens of the United States, residing at East St. Louis, in the county of St. Clair and State of Illinois, have invented new and useful Improvements in Aerial-Mail Exchanges, of which the following is a specification.

This invention relates to aerial mail exchanges, the broad object in view being to provide means whereby an airplane or other air craft will be enabled to catch and deliver mail in pouches while in flight thereby doing away with the necessity of making a landing for that purpose.

With the above and other objects in view, the invention consists in the novel construction, combination and arrangement herein fully described, illustrated and claimed.

In the accompanying drawings:—

Figure 1 is a front elevation of the aerial mail exchange.

Fig. 2 is a vertical sectional elevation on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary elevation on an enlarged scale of the upper portion of the apparatus.

Fig. 4 is a side elevation of an airplane, partly in section, showing the means for catching and delivering a mail pouch.

Fig. 5 is a fragmentary elevation of the same showing the releasing position of the same mechanism.

As illustrated in the drawings, the complete apparatus in the preferred embodiment thereof, comprises a suitable base 1, and a pair of standards or posts 2 extending upwardly therefrom and arranged in spaced parallel relation to each other so as to provide for the necessary clearance to enable an airplane to pass between the masts hereinafter described and which extend upwardly above the top of said posts. The posts or standards 2 may be equipped with signal lights 3 for use at night and may also be provided with flag sockets 4 to receive flags 5 or the like suitable for signaling purposes, said signals being used to advise the aviator when a mail pouch is suspended upon the masts hereinafter described.

In connection with the posts or standards 2 we employ a pair of flexible masts 6. Said masts may be composed of any suitable resilient material such as metal, wood or the like and are adapted to be raised and lowered with respect to the standards or posts 2 in order that the mail pouch indicated at 7 may be raised to the desired altitude preparatory to the same being picked up by an airplane. Each of the masts 6 is attached at two or more points to a sprocket chain 8 and said sprocket chains pass at their lower portions around sprocket wheels 9 on an elevating shaft 10 which is horizontally disposed and journaled in bearings adjacent to the lower ends of the uprights or posts 2, the shaft 10 being provided with any suitable operating means 11 such as a crank handle. The chains 8 pass at their upper portions over sprocket wheels 12 journaled upon stub shafts 13 projecting inwardly from the posts or standards 2. Above the sprocket wheels 12, the masts 6 pass through suitable guides 14 on the posts 2.

The mail pouch shown at 7 is provided with a supporting eye 15 adapted to receive and be engaged by a hook 16 shown in the form of a snap hook which is attached to a flexible sling or suspending rope or loop 17. Attached to the upper extremity of the masts 6 by means of ball and socket joints 18 are gripping members or devices 19 shown in the form of spring clasps, the same being adapted to engage bights 20 in the flexible sling or loop supporting rope 17 as shown in Figs. 1 and 3 whereby the sling is spread in an open position so that it may be readily grasped or engaged by the collecting or delivering arm carried by the airplane as will hereinafter appear.

Carried by the air plane or air craft as shown in Figs. 4 and 5 is a pouch catching and delivering arm or lever 20′, the same being fixedly secured to a rock shaft 21 extending transversely of the bottom of the fuselage of the flying machine and journaled in bearing members 22 thereon. At its free end, the arm 22 is provided with a catching and retaining hook 23 and is also provided with an oppositely extending tongue 24 which in mail bag carrying position is engaged and held by means of a spring keeper 25 having spring fingers as shown between which the tongue is held and retained. Extending upwardly from the rock shaft 21 is an operating arm 26 which is connected by a rod 27 to a manually operable lever 28 mounted within the fuselage of the flying machine and comprising a thumb latch 29 which engages an arcuate rack 30. This enables the lever 28 and the lever 20′ to be

held in a certain fixed position preparatory to catching the mail pouch.

From the foregoing description taken in connection with the accompanying drawings, the operation of the mechanism will now be understood. Before reaching a station, a mail pouch to be delivered is placed upon the arm 20′ and the tongue 24 of said arm is engaged with the keeper 25. Just before reaching the station, the aviator operates the lever 29 and thereby thrusts the arm 20′ to a substantially pendent or vertical position beneath the fuselage of the machine. He then directs the craft so that the arm 20 will strike the upper portion of the sling 17 causing said portion of the sling to pass over the hook 23. In moving the arm or said lever 20 to the position just referred to, the bag for delivery is released from the arm as soon as the tongues 24 leave the keeper 25. The hook 23 then catches the flexible sling 17 and forcibly jerks the same away from the gripping members or devices 19. The masts 6 may then be lowered by means of the elevating shaft 10 so that another mail pouch may be engaged with the grippers 19 preparatory to hoisting the same to the desired altitude for engagement with the catching arm of the following air craft. It will thus be seen that the mail may be picked up and delivered by an air plane while in natural flight and without the necessity of effecting an actual landing upon the surface of the ground.

Having thus described the invention, we claim:

1. The combination with an aircraft, of a mail catching and delivering arm pivotally attached thereto beneath the fuselage, a spring detent for holding said arm in bag holding position, a rock shaft to which said arm is fastened, and a manually operable lever for turning said rock shaft.

2. The combination with an aircraft, of a mail catching and delivering arm pivotally attached thereto, beneath the fuselage, means for holding the arm in bag holding position, and means for adjusting the arms to delivering position.

3. The combination with an aircraft, of a mail catching and delivering arm pivotally attached thereto beneath the fuselage, a catching and retaining hook formed on the end of said arm, means for holding said arm in bag holding position, and means for adjusting the arm to a delivering position.

4. The combination with an aircraft, of a mail catching and delivering arm pivotally attached thereto beneath the fuselage, a catching and retaining hook formed on the extremity of said arm, a spring detent for holding said arm in bag holding position, and means for adjusting said arm to a delivering position.

5. The combination with an aircraft, of a mail catching and delivering arm pivotally attached thereto beneath the fuselage, a tongue projecting from one end of the arm, a spring detent for engaging said tongue and holding said arm in bag holding position, and means for adjusting said arm to a delivering position.

6. The combination with an aircraft, of a mail catching and delivering arm pivotally attached thereto beneath the fuselage, a catching and retaining hook on one end of the arm, a tongue on the same end of the arm, means for engaging said tongue for holding said arm in bag holding position, and means for adjusting said arm to a delivering position.

In testimony whereof we affix our signatures.

WILLIAM H. BURTON.
CLAUD J. WILKERSON.