Aug. 4, 1925. 1,548,686

J. H. HOBACK ET AL

FLYING MACHINE

Filed Nov. 11, 1924 3 Sheets-Sheet 1

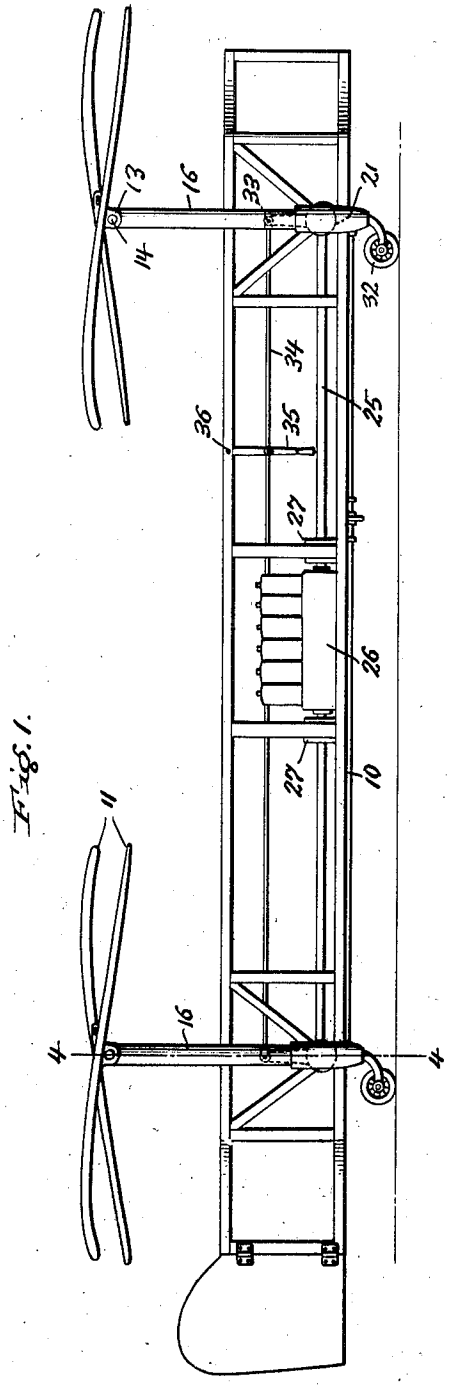


Fig. 1.

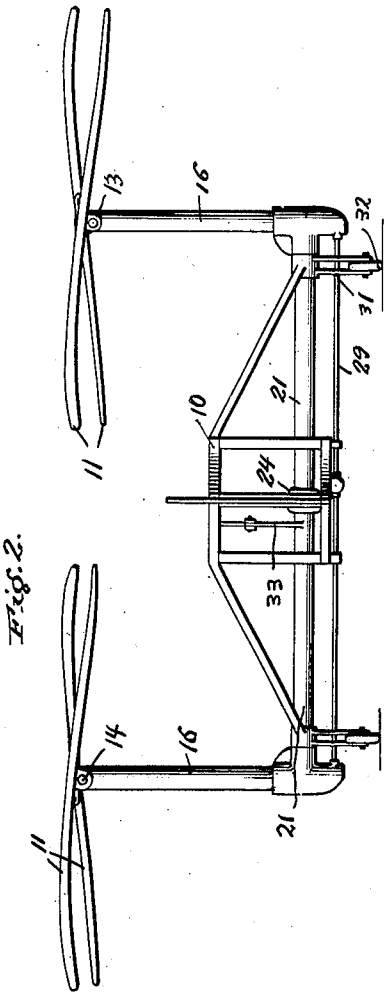


Fig. 2.

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FLYING MACHINE

Filed Nov. 11, 1924 3 Sheets-Sheet 2

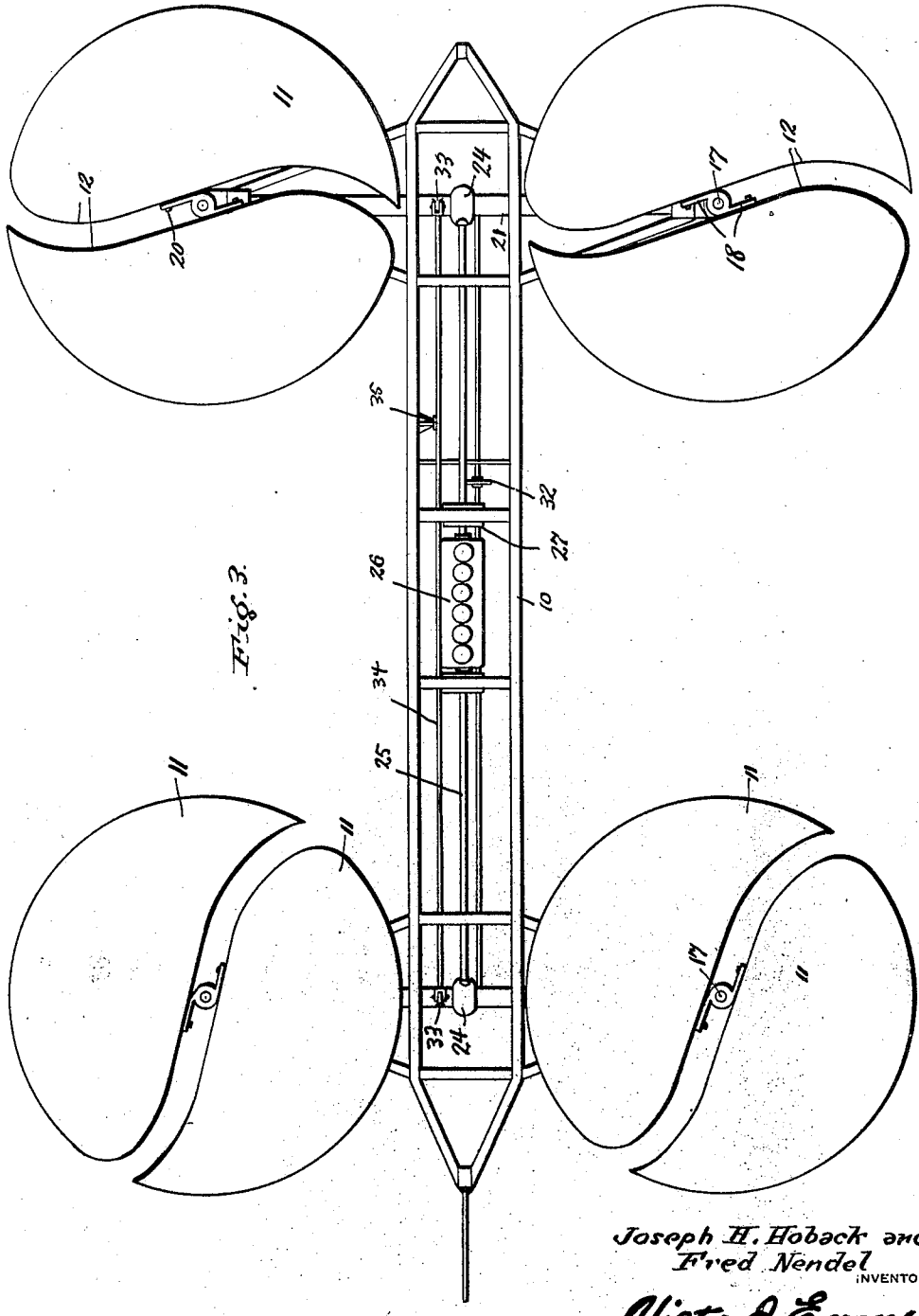


Fig. 3.

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FLYING MACHINE

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Fig. 4.

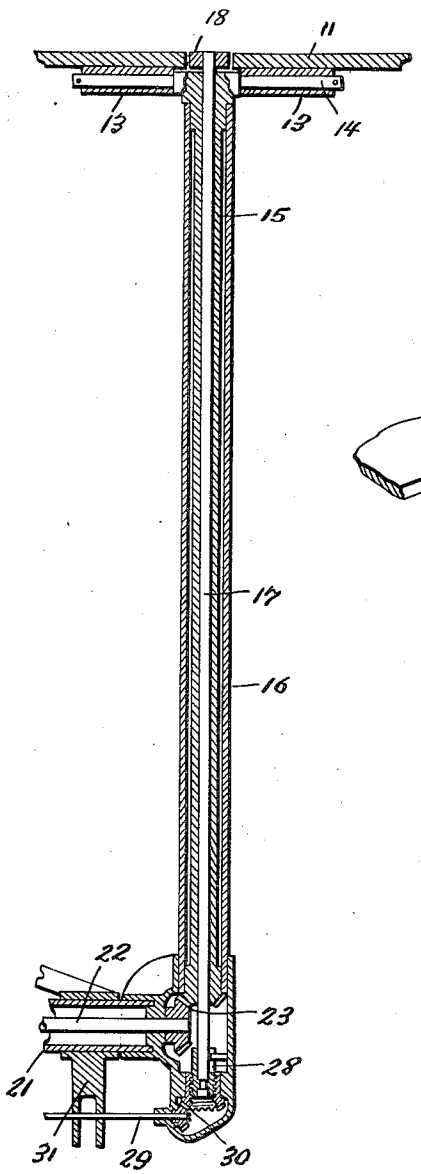
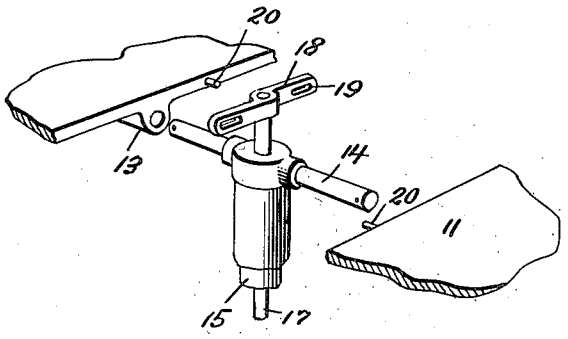


Fig. 5.



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Patented Aug. 4, 1925. 1,548,686

UNITED STATES PATENT OFFICE.

JOSEPH H. HOBACK AND FRED NENDEL, OF ORCUTT, CALIFORNIA.

FLYING MACHINE.

Application filed November 11, 1924. Serial No. 749,287.

To all whom it may concern:

Be it known that we, JOSEPH H. HOBACK and FRED NENDEL, citizens of the United States, residing at Orcutt, in the county of Santa Barbara and State of California, have invented new and useful Improvements in Flying Machines, of which the following is a specification.

This invention relates to improvements in flying machines, an object being to provide means whereby a heavier than air machine may ascend or descend vertically, hover or remain substantially stationary in the air and travel in a horizontal or upwardly or downwardly inclined direction.

With the above and other objects in view, the invention further includes the following novel features and details of construction, to be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings:—

Figure 1 is a side elevation of a flying machine constructed in accordance with the invention.

Figure 2 is an end view of the same.

Figure 3 is a top plan view.

Figure 4 is an enlarged fragmentary sectional view on the line 4—4 of Figure 1.

Figure 5 is a fragmentary perspective view illustrating the connection between the pairs of wings whereby the wings may be relatively adjusted, the parts being shown in separated relation.

Referring to the drawings in detail wherein like characters of reference denote corresponding parts, the reference character 10 indicates the body structure or frame of the machine while 11 indicates the wings.

As shown in Figure 2 of the drawings these wings are arranged in spaced pairs, each pair comprising two independent wings 11 whose opposed edges are oppositely curved as indicated at 12 so that a substantially S-shaped slot is provided between the wings. In addition the wings of each pair are oppositely inclined as shown in Figures 1 and 2 and the wings are also capable of relative adjustment for the purpose of regulating this inclination.

The wings 11 are provided upon their under faces with sleeves 13 and these sleeves receive oppositely extending arms 14 which project from a hollow post or shaft 15, the latter being contained within a housing 16.

Extending through the hollow post 15 is a shaft 17 whose upper end carries oppositely extending arms 18 which are provided with longitudinally disposed slots 19. The slots 19 receive pins 20 which extend from the opposed edges of the wings 11. As the shaft 17 is capable of longitudinal movement within the hollow shaft 15, the wings 11 may be oppositely and relatively adjusted, longitudinal movement of the shaft 17 being effected in a manner to be later explained.

The structure just described is duplicated for each pair of wings and the lower ends of the housing 16 have secured thereto the outer ends of housings 21. These housings 21 extend inwardly and transversely of the body structure and provide bearings for shafts 22, the latter being geared to the hollow shafts 15 by gearing 23. The inner ends of the shafts 22 are operatively connected by a suitable differential mechanism contained within housings 24 the said mechanism being operatively connected to drive shafts 25 which are operated by a motor 26, clutches 27 being interposed between the motor and shafts 25.

The lower ends of the shafts 17 have a swiveled connection with worms 28 and the latter are geared to shafts 29 by gears 30. The shafts 29 extend transversely of the body structure and are mounted in suitable bearing brackets 31 depending from the housings 21 and these brackets carry landing wheels 32.

Extending from the housings 21 are arms 33 and the latter have connected thereto rods 34, while these rods are connected to a common operating handle 35 which is pivotally mounted in the body structure as at 36.

It will be seen by reference to Figure 1 of the drawings that when the lever 35 is moved pivotally the housings 21 will be rocked pivotally in their bearings so that the housings 16 and consequently the wings 11 will be tilted, the direction and degree of tilt being governed by the direction of movement of the lever 35.

When the wings are arranged as shown in the drawings, the machine may rise or descend in a vertical line, or it may remain substantially stationary in the air. By tilting the housings 16 with respect to the vertical, the machine will travel in a forward direction and the speed of travel and the speed of ascent or descent may be controlled

by adjusting the relative inclinations of the wings 11.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

Having described the invention what is claimed is:—

1. In a flying machine, a body structure, horizontally rotatable wings upon opposite sides and at each end of said body structure, said wings being arranged in spaced pairs and each pair comprising oppositely and relatively horizontally inclined substantially semi-circular planes having the opposite ends of their opposed edges curved in opposite directions, means whereby the wings may be rotated and means whereby said wings may be adjusted relative to the horizontal.

2. In a flying machine, a body structure, horizontally rotatable wings upon opposite sides and at each end of said body structure, said wings being arranged in spaced pairs and each pair comprising oppositely and relatively horizontally inclined substantially semi-circular planes having the opposite ends of their opposed edges curved in opposite directions, means whereby the wings may be rotated, means whereby the wings may be simultaneously tilted relative to the horizontal and means whereby the wings of each pair may be adjusted relative to one another.

In testimony whereof we affix our signatures.

FRED NENDEL.
JOSEPH H. HOBACK.