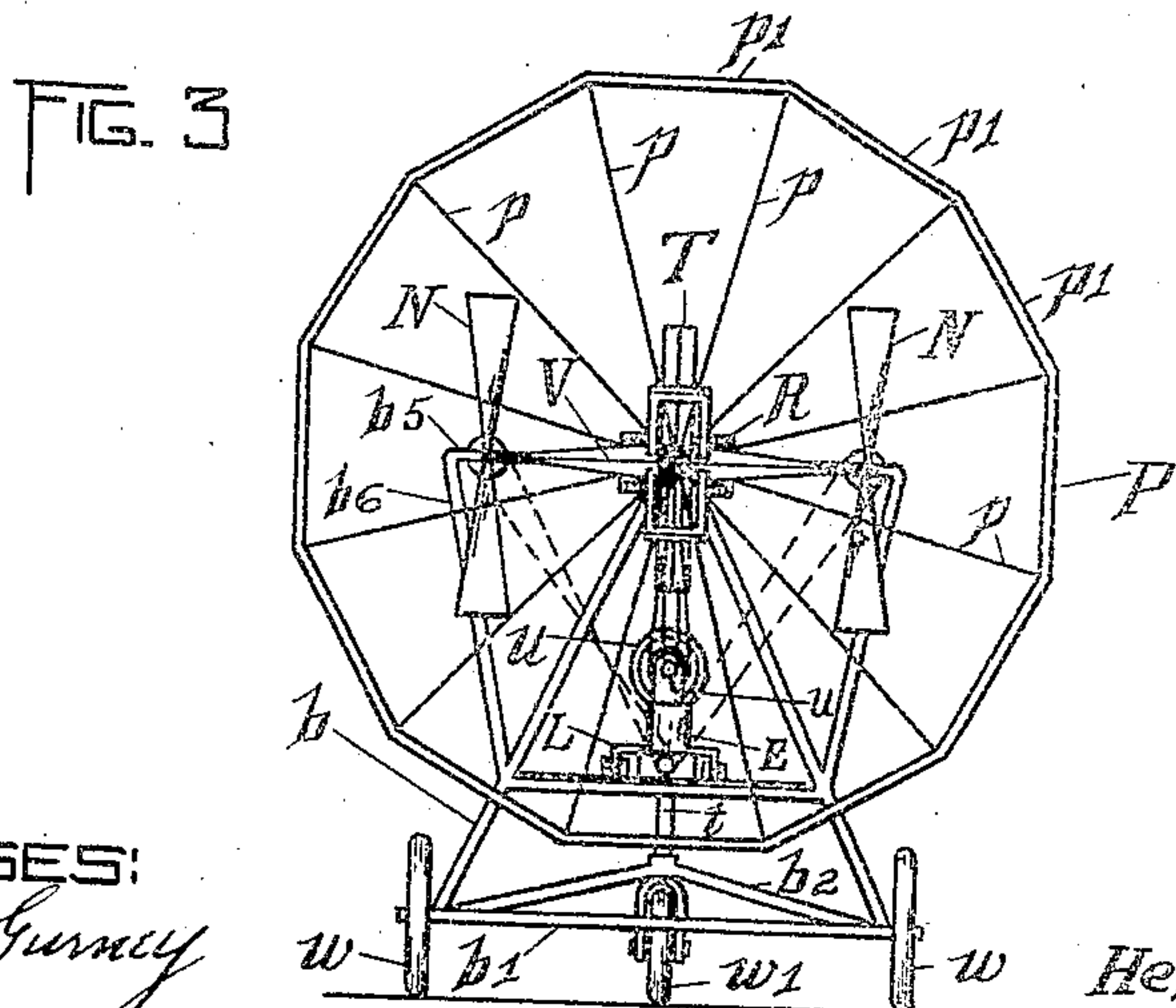
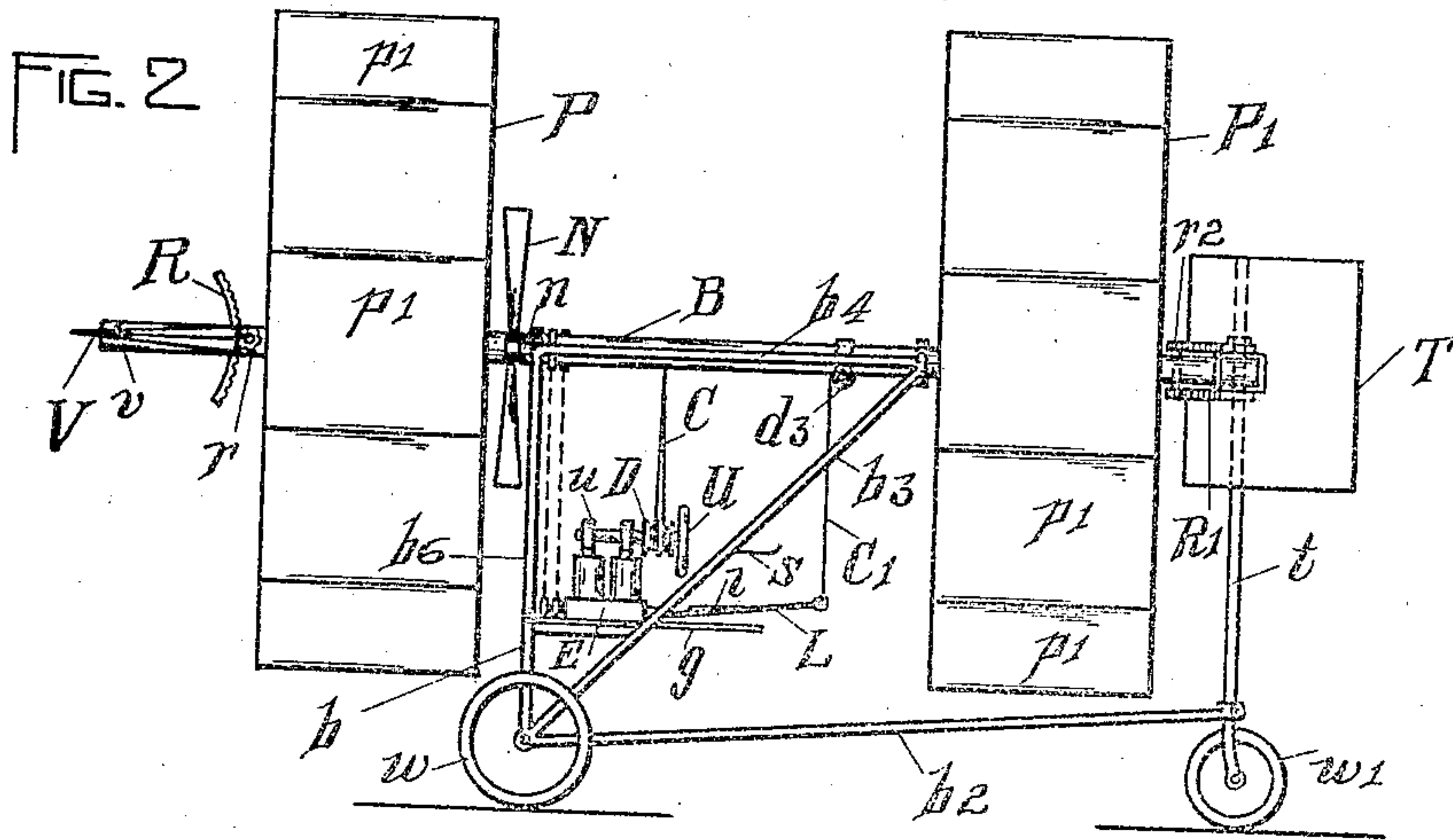
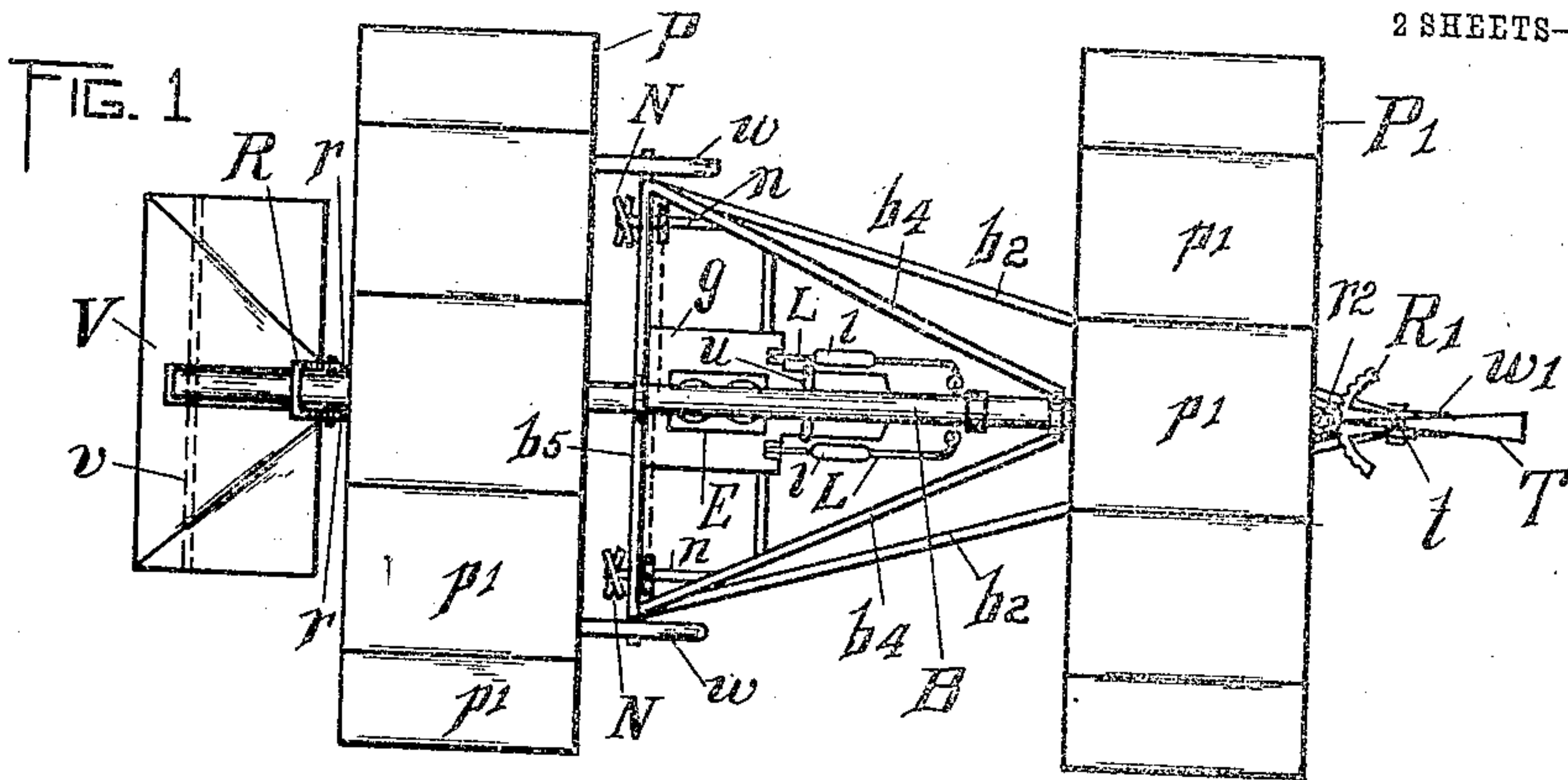


951,585.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.



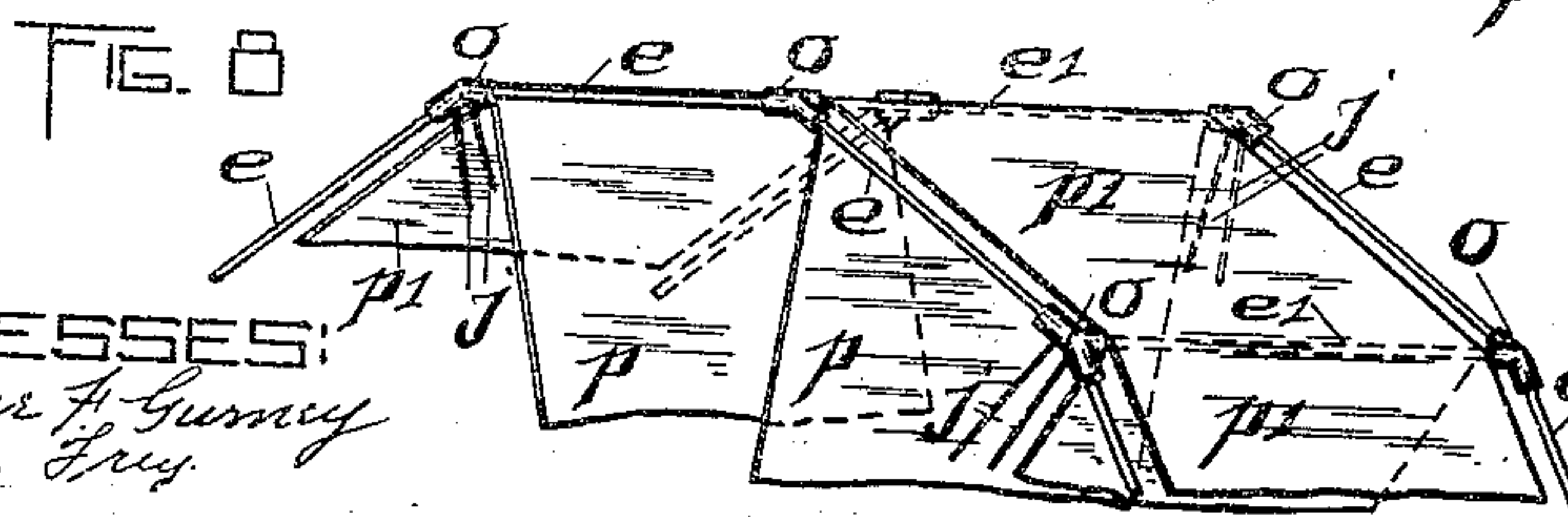
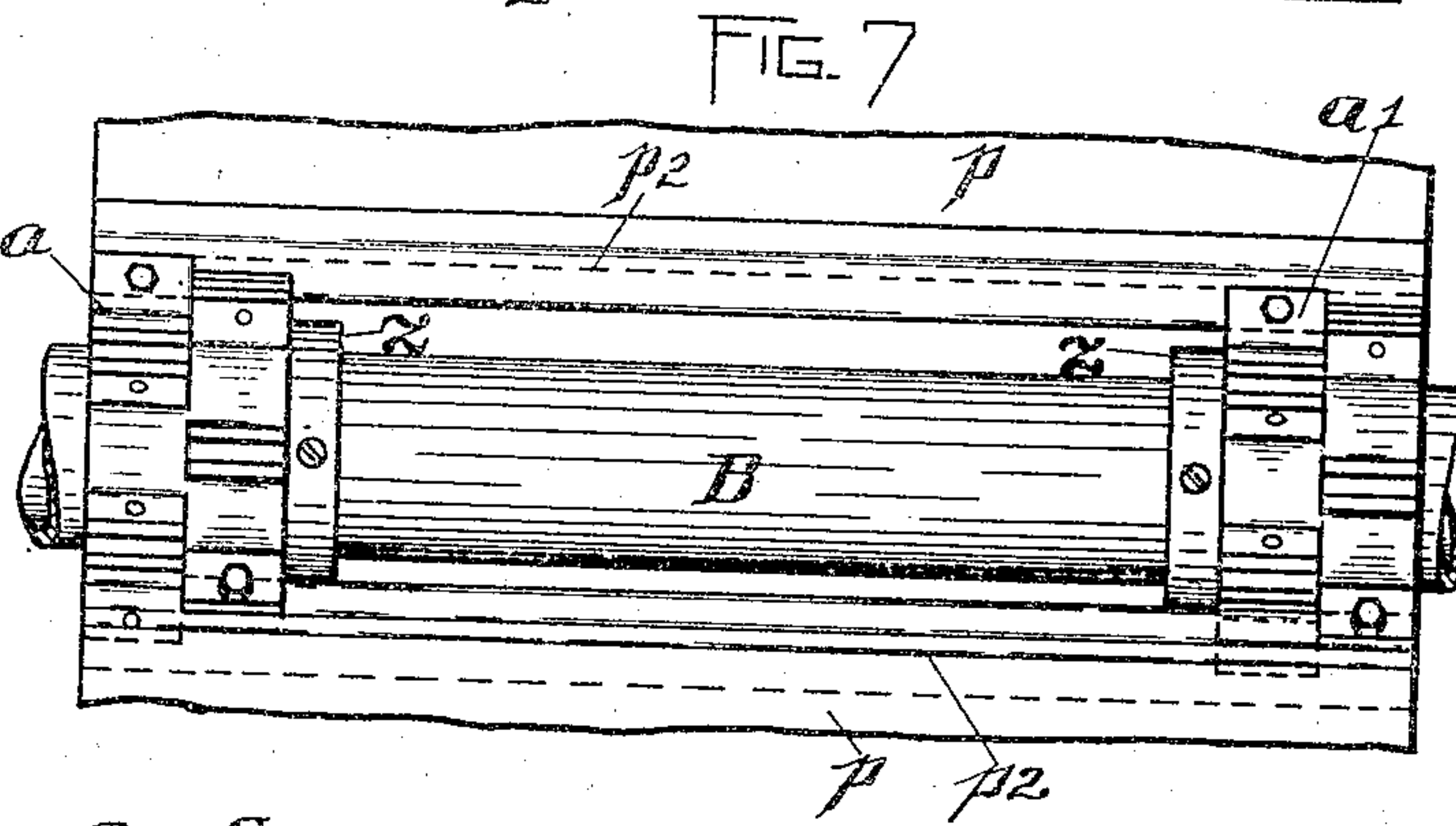
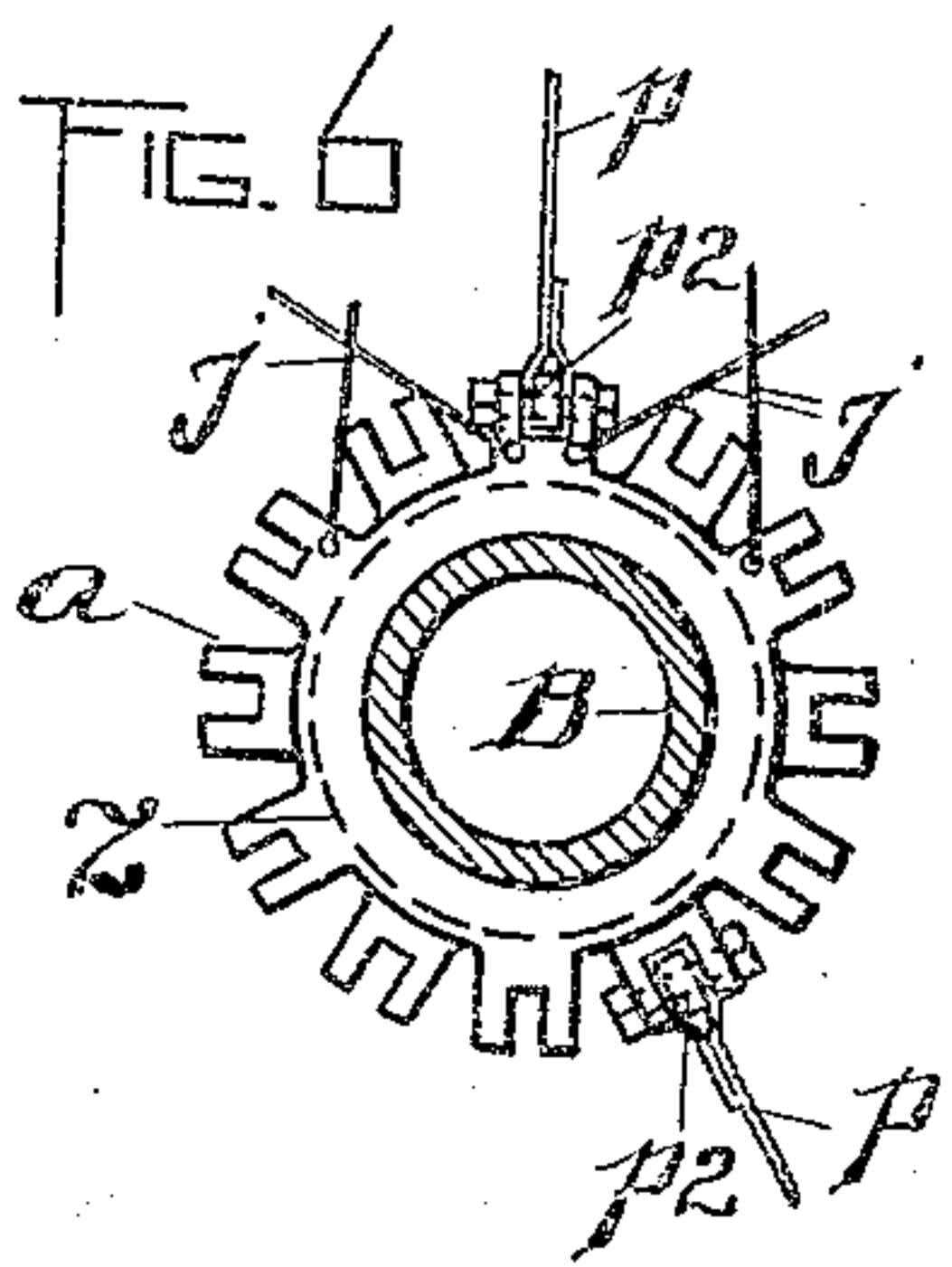
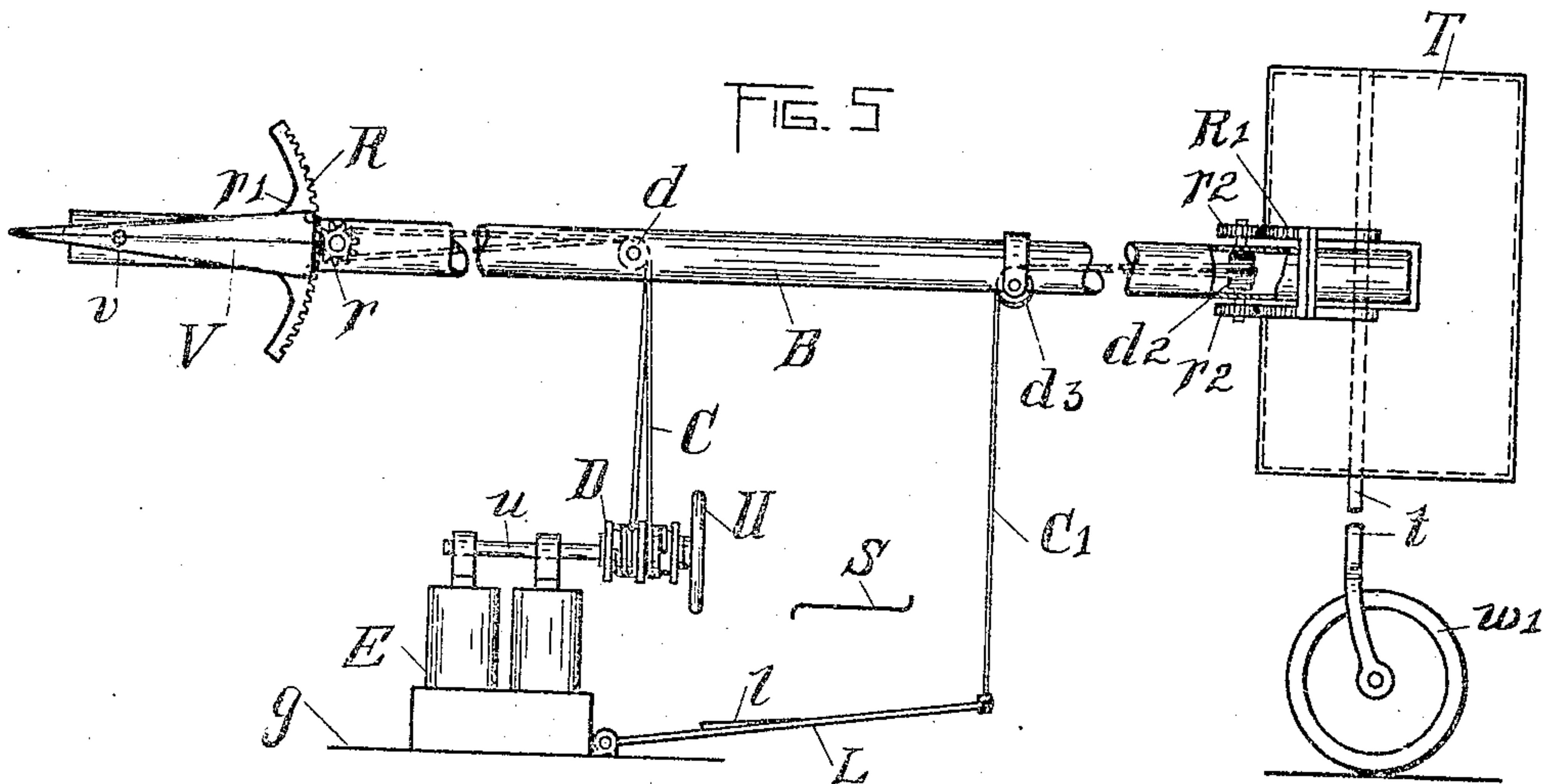
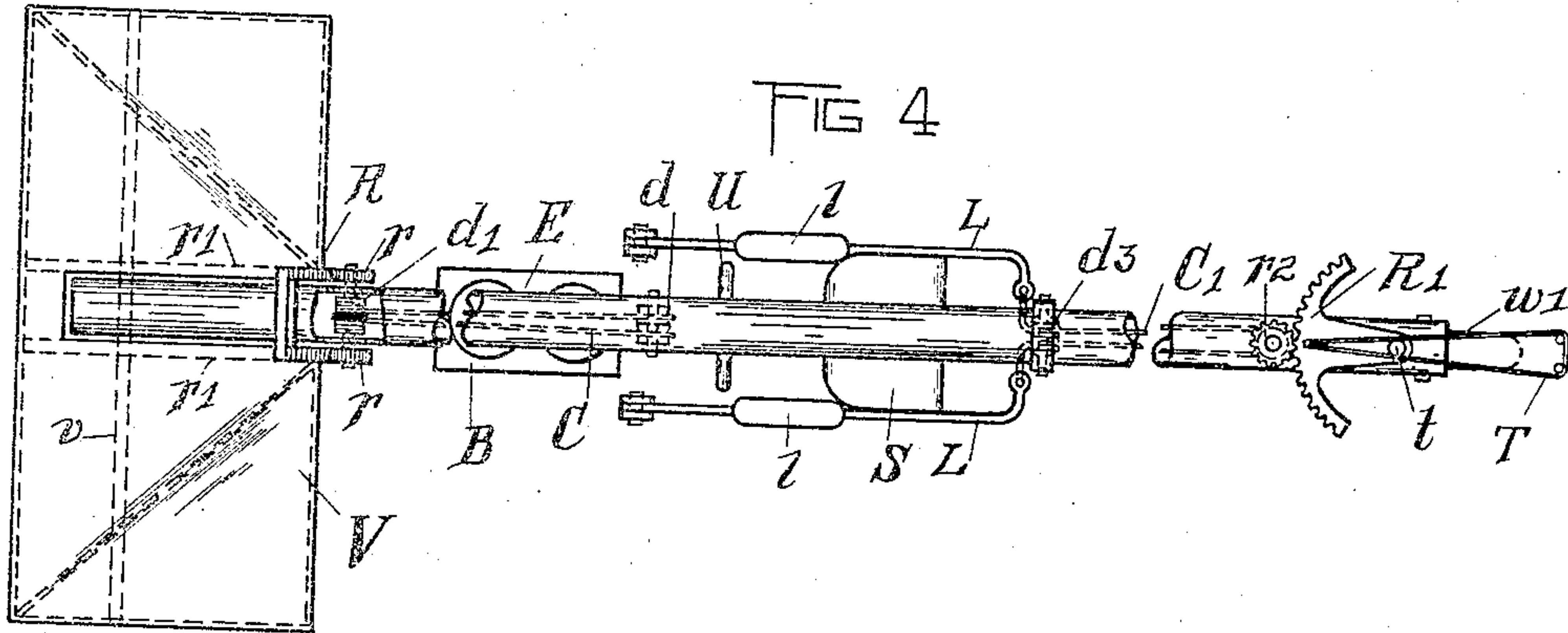
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951,585.

Patented Mar. 8, 1910.
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HERMAN F. WEIDEL, OF ROCHESTER, NEW YORK.

AEROPLANE.

951,585.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed September 17, 1908. Serial No. 453,380.

To all whom it may concern:

Be it known that I, HERMAN F. WEIDEL, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented a new and Improved Aeroplane, of which the following is a specification.

This invention relates to means for securing a more effectual control of an aviator and also for avoiding that class of accidents which result from a loss of control of the machine when, during flight, it is moving obliquely through strong air currents.

The invention comprises such a construction of and such a method of connecting the aeroplane with the support for the operator as will automatically maintain a perfect equilibrium of the apparatus for all such conditions; to this end my invention comprises an aeroplane or aeroplanes of general hollow prismatic structure, preferably regular, and having outer peripheries formed of suitable sheet material and having planes of similar material extending between the angles at the periphery and a central support or hub, revolubly mounted on the main body of the aviator, whereby the aeroplane is free to assume any angular position independently of any movement of the operator. With the aeroplane constructed as above indicated the resultant effect is modified very slightly for any such swinging or rotary movement.

Another feature of my invention comprises independent steering apparatus for controlling the ascension and descension and for controlling the movement of the machine in transverse directions and this latter steering gear is pivotally connected with the steering wheel of the running gear upon which the machine may be supported and propelled previous to flight.

The accompanying drawings illustrating an aviator in accordance with my invention are as follows:—

Figure 1, is a top or plan view, Fig. 2, is a side view and Fig. 3, is a front view. Fig. 4, shows a top or plan view of the main supporting member for the aeroplane and the operating mechanism. Fig. 5, is a side view of the parts as seen in Fig. 4. Fig. 6, shows in end view and Fig. 7, in side view the construction of one of the hubs for supporting one aeroplane. Fig. 8, is a partial view of one of the aeroplanes showing the construction of the frame work of the same.

Similar letters refer to similar parts throughout the several views.

Referring to the drawings:—B is a tubular member comprising the main body portion of the frame work of my aviator. This member B is supported at the front end of the machine upon a tubular frame work composed of the two oblique members *b* and the horizontal members *b*¹ comprising the axle for the front wheels *w*. This member B is supported at its rear end upon the vertical member *t*, pivotally secured in the rear end of such member B and extending downwardly therefrom, is rotatable through a bearing formed therefor at the junction of the horizontal members *b*² of the frame work, and below such bearing this tubular member *t* is bifurcated and carries bearings for the rear and steering wheel *w*¹. Bracing members *b*³ extend obliquely upward and inward from the member *b*¹ near its ends and just inside of the wheels *w* and are secured in a collar embracing the tubular member B, from which collar there extends obliquely outward and forward the tubular members *b*⁴, which at their forward ends are connected by the horizontal member *b*⁵, from the ends of which in turn there extend obliquely downwardly the bracing members *b*⁶, which at their lower ends are secured to the member *b*. This upper horizontal member *b*⁵ carries bearings for the forward ends of the two fan shafts *n*, the bearings for the rear ends of which are carried by the tubular members *b*⁴. A suitable platform *g* is supported at its front end upon a bar extending between the tubular members *b* and at its rear end upon a bar extending between the oblique members *b*³, and a seat *S* for the operator is supported from such members *b*³. Upon the platform *g* is secured the motor *E* between which and the fan shafts *n* operative connections are made as indicated, for driving fans *N* therefrom.

On the top of the motor *E* are provided bearings for the main operating shaft *u* of the controlling mechanism having the operating wheel *U* thereon. On this shaft *u* is provided a double spool or windlass *D*, upon the different sections of which are wound in opposite directions the ends of the cord *C*, such cord passing over the pulleys *d* supported within the tubular member B, such cord extending to the drum *d*¹ around which it is wound and secured in such a way that the rotation of the wheel *U* causes a rota-

tion of the drum d^1 . The shaft of the drum d^1 has bearings in the side walls of the tubular member B, and upon the ends of such shaft extending through such tubular member B are secured gears r engaging the segmental racks R, the arc of the circle of which is drawn from the center of the bolt v on which the arms r^1 for carrying such racks are pivotally supported from the member B, the bolt or pin v extending there-
 10 through, and such arms r^1 carry the frame work for supporting the front vane or steering gear V. The angle of the vane V is varied by the rotation of the wheel U in the way indicated and already described for the purpose of deflecting the aviator up-
 15 wardly or downwardly and thereby controlling the ascension or descension of the apparatus.

The rear steering vane for controlling the direction of the apparatus horizontally comprises the vane T carried by the tubular member t pivotally secured in the rear end of the tubular member B and extending ver-
 20 tically downwardly therefrom. This tubular member t is the pivotal center for and carries segmental racks R^1 which are engaged by the gears r^2 , carried on the outer ends of the shaft of the drum d^2 which ex-
 25 tends through and has bearings in the side walls of the tubular member B. A cord C^1 wound around and secured to the drum d^2 extends over the pulleys d^3 and downwardly therefrom and is secured to the rear ends
 30 of the levers L, each having a foot hold l thereon and being pivotally supported at its forward end from the platform g carrying the motor E. The direction of the travel of the machine in a horizontal plane is con-
 35 trolled by the operation of the levers L by the feet of the operator resting on the foot holds l , the operator occupying the seat S. Upon this member B and near the forward and rear ends thereof are pivotally secured
 40 aeroplanes P and P^1 , constructed as shown in the drawings in the form of dodecagonal prisms. As the two aeroplanes are constructed substantially alike it will be neces-
 45 sary to describe the construction only of one of them, for instance, the one P. The frame work for such an aeroplane comprises two dodecagonal skeletons, the sides of which are formed of the tubular members e se-
 50 cured into the three-way elbows o and such two similar dodecagonal skeleton frames are held together in parallel planes and the right distance apart by means of the cross
 55 bars e^1 secured in the elbows o preferably by right and left hand threads to permit of ready assembling. The outer surface of the
 60 aeroplane comprises preferably a continuous sheet of canvas or like material extended around and forming a series of peripherally extending planes p^1 , supported from these
 65 members e^1 . From these members e^1 there

extend radially inward similar planes p , having their outer ends secured to these members e^1 and their inner ends folded around and secured to the rods p^2 secured alternately in the front and rear series
 70 of notches in the hub members a and a^1 . Each hub member a and a^1 comprises a collar having a front and rear series of notches in its periphery in which alternate ones of these members p^2 are secured by means of
 75 bolts or rivets as indicated. Such hub members or collars a and a^1 are rigidly secured together by means of the members p^2 when secured thereto. The bars p^2 are so extended that the corresponding ends of all such bars
 80 are in the same plane, whereby all of the front edges of the radially extending planes p are in substantially one plane with the front edge of the series of planes p^1 and the rear edges of such planes p are in substan-
 85 tially the same plane with the rear edges of the series of peripherally extending planes p^1 . The collar or hub members for supporting the aeroplanes are rotatable upon the member B and may be prevented from lon-
 90 gitudinal movement thereon by means of suitable collars z as shown.

Bracing rods j as shown partially in Figs. 6 and 8, extending obliquely outward from the hub members may be used to prevent a
 95 relative rotation between the peripheral planes and the hub members by the swinging of the planes p on the hub members,—there may be any desired number of such rods j of which only four are shown in such fig-
 100 ures,—and other bracing members, not shown, may be used when needed to brace and strengthen the aeroplanes to prevent their distortion.

Attention is especially called to the fol-
 105 lowing features in the construction and operation of my aviator. The effective area of either one of the aeroplanes P and P^1 is substantially the same for any and all angu-
 110 lar positions of such aeroplanes relative to the support for the propelling mechanism and the operator whereby there is overcome any difficulty resulting from the passage of the machine obliquely through a current of
 115 air engaging the aeroplanes,—that is, the aeroplane may be caused to revolve by engagement with such currents without materially modifying the resultant effect of the device and also without inconveniencing the
 120 occupant or disturbing any of the other adjustments, and such aeroplanes may revolve without affecting the occupant, the propelling mechanism or steering vanes connected and operated with the steering wheel.

What I claim is:—

1. In a device for the purpose described, an aeroplane comprising a hollow prismatic structure pivotally connected at substan-
 125 tially its axis with the support for the operating mechanism and the operator.

2. In a device for the purpose described, an aeroplane comprising a series of planes diverging from substantially a common axial center and pivotally connected near such center with the support for the operator and the operating mechanism and a relatively rigid rim member supported concentrically of such axial center by such planes connected thereto under tension.

3. In a device for the purpose described, an aeroplane comprising a series of planes diverging from substantially a common axial center and connected near such center with the support for the operator and the operating mechanism and a relatively rigid rim member supported concentrically of such axial center by such planes connected thereto under tension.

4. In a device for the purpose described, an aeroplane comprising a regular prismatic structure pivotally connected at approximately its center with the support for the operating mechanism and the operator.

5. In a device for the purpose described, an aeroplane comprising a hollow prismatic structure and a series of converging planes extending from angles of the prismatic structure toward the center, and such entire

structure pivotally connected with the main support for the operating mechanism and the operator.

6. In a device for the purpose described, an aeroplane comprising a regular and hollow prismatic structure and a series of converging planes extending from the angles of the prismatic structure toward the center and such entire structure pivotally connected with the main support for the operating mechanism and the operator.

7. In a device for the purpose described, an aeroplane comprising a series of planes diverging from substantially a common axial center and pivotally connected near such center with the support for the operator and the operating mechanism; a relatively rigid rim member supported concentrically of such axial center by such planes connected thereto under tension and means for preventing relative angular displacement between such rim member and the inner ends of such planes.

HERMAN F. WEIDEL.

Witnesses:

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OSBORNE F. GURNEY.