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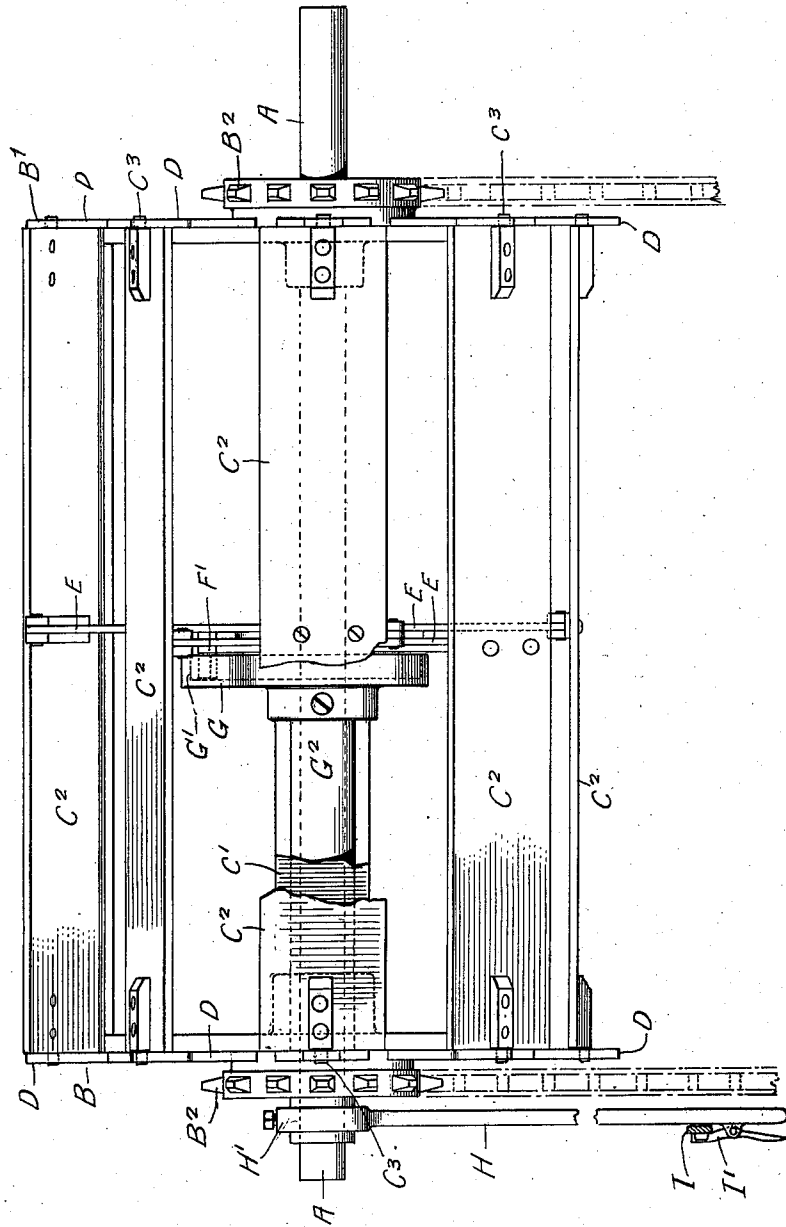
R. H. MILTON.
AIRSHIP PROPELLER.
APPLICATION FILED NOV. 20, 1911.

1,028,765.

Patented June 4, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

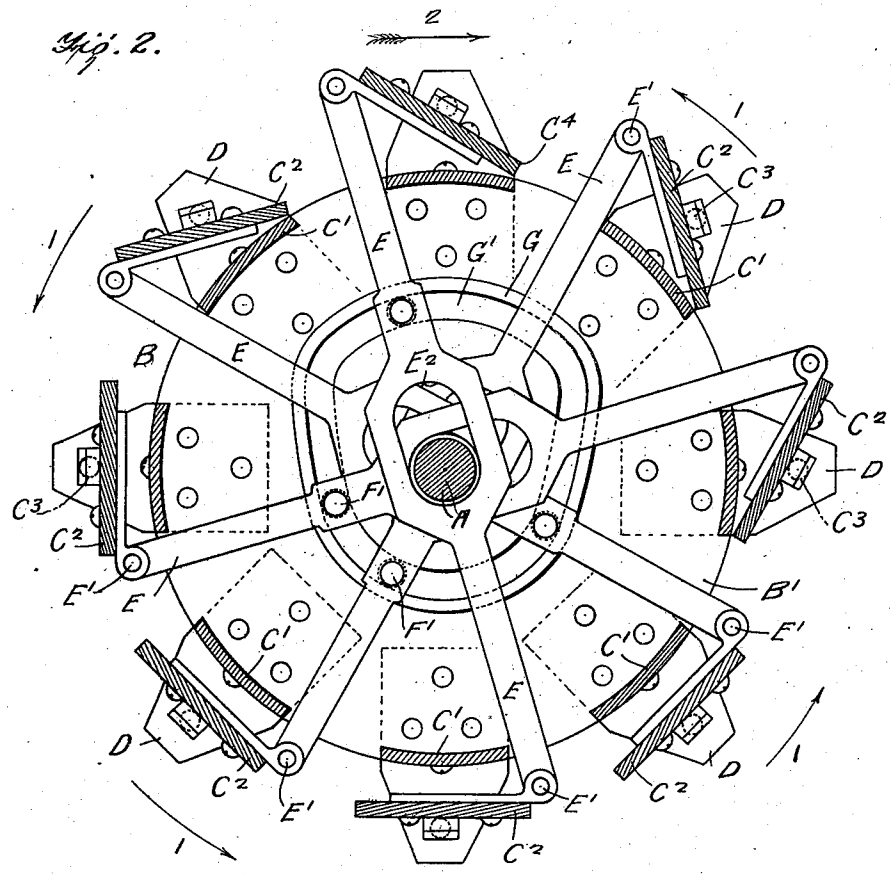
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UNITED STATES PATENT OFFICE.

RICHARD H. MILTON, OF GREENSBORO, NORTH CAROLINA.

AIRSHIP-PROPELLER.

1,028,765.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed November 20, 1911. Serial No. 661,230.

To all whom it may concern:

Be it known that I, RICHARD H. MILTON, a citizen of the United States, and a resident of Greensboro, in the county of Guilford and State of North Carolina, have invented certain new and useful Improvements in Airship-Propellers, of which the following is a specification.

This invention is an improvement in the propelling means for airships and has for an object to provide a novel construction of revolving propeller wherein buckets receive and hold the air during the power stroke and are opened to permit the free passage of the air during the idle portion of the stroke of the buckets so that the buckets will have a strong hold on the air while operating to drive the ship and will have a comparatively free return; and the invention consists in certain novel constructions and combinations of parts as will be hereinafter described and claimed.

In the drawings Figure 1 is a side view and Fig. 2 is a cross section of a propeller embodying my invention.

In practice, it is proposed to suspend the car and gasoline engine or other motor from the shaft forming a part of the propeller, but as this special feature forms no part of my present invention, it is not necessary to illustrate the same herein.

In the construction shown, I employ a shaft A and what for convenience of reference, I term a cylinder or reel B, the latter having end portions or heads B' each of which is provided with a sprocket wheel B² which may be connected with a suitable motor for revolving the cylinder or reel in the operation of the invention. This cylinder or reel is supported by the shaft A and is provided at intervals surrounding its circumference with buckets C which include the inner or fixed plates C' and the outer or movable plates C². The inner plates C' are preferably fixed to and extend between the opposite heads B' of the reel B and lugs D project outwardly at the ends of the plates C' and forms supports to which the plates C² are pivoted at C³ as best shown in Fig. 2 of the drawings. It will be noticed that these plates C² are pivoted approximately midway between their edges so that the plates may rock between the positions shown in Fig. 2 to bring what may be termed

the rear edges of the plates C² near to the corresponding edges of their complementary plates C' or away from said edges, both such positions being shown in Fig. 2 of the drawings. When the buckets are closed as shown at the top portion of Fig. 2, I seek to prevent the bringing of the rear edges of the movable plates into contact with the corresponding edges of the fixed plates but leave a narrow space between such edges thus permitting the escape of air, even when the buckets are closed and providing a certain amount of clearance which results in a steadying of the operation in the practical use of the propeller. By this feature of my invention I provide intentionally for leaving a slight escape for air at the rear of the buckets.

The opposite buckets and preferably the diametrically opposite ones, are connected by bars E pivoted at E' at their ends to the front ends of the movable plates C² and slotted at their middles at E² for the passage of the shaft A as shown in Fig. 2 of the drawings. These bars E are provided with projections in the form of studs F' which enter a cam groove G' in the face of a cam G, the said cam having a sleeve G² which encircles the shaft A and extends through the hub of one of the sprocket wheels B² to the outside of the reel or cylinder B where it receives means to permit the turning of the sleeve G² in order to adjust the cam to cause the buckets to open and close at different points in the circumference of the reel. These means may include a pendent arm H, having at its upper end a ring H' secured upon the sleeve G² and arranged when rocked at its lower end to turn the sleeve G² and thus adjust the cam. Any suitable means such as a rack segment I and a spring actuated pawl I', see Fig. 1, may be provided for securing the arm H and the sleeve operated thereby in any suitable adjustment.

In operation, it will be noticed the buckets may be caused to open and close at the desired points to either elevate the propeller or to cause the propeller to move laterally and upward. Thus in the arrangement shown in Fig. 2, the buckets are closed at the top and slightly upon the right side of the propeller in such manner as to cause motion in the direction of the arrow 2 when the propeller is revolved in the direction of the arrows No. 1. When the invention is

utilized in connection with the planes of an aeroplane, the manipulation of the buckets may be conveniently effected by the aviator.

I claim:

- 5 1. A propeller, substantially as herein described, comprising a shaft, a body or reel having heads at its opposite ends, bucket plates extending between said heads and fixed thereto, lugs projecting outwardly at
10 the ends of the said bucket plates, movable bucket plates pivoted between their front and rear edges to said lugs and movable on their said pivots between open and closed positions, bars connecting the diametrically
15 opposite pivoted bucket plates and slotted at their middles for the passage of the shaft, stud-like projections on said bars, a cam having a groove entered by the said stud-like projections and a sleeve encircling the shaft and
20 extending beyond the reel and adapted to be turned whereby to adjust the position of the cam to cause the buckets to open and close at the desired points, substantially as set forth.
- 25 2. A propeller, substantially as herein described, comprising a body or reel having bucket plates and pivoted bucket plates co-operating with those of the reel or body and means for opening and closing the buckets,
30 the buckets when closed being provided at their bottoms with venting openings or spaces, substantially as set forth.
- 35 3. A propeller for airships comprising a reel or body and buckets at the rim thereof and adapted to open and close, the said buckets having at their bottoms restricted openings or passages when the buckets are in closed position, substantially as set forth.

4. A propeller, substantially as described, having buckets composed of inner fixed
40 plates spaced apart and outer pivoted plates and means for rocking the latter between open and closed position, substantially as set forth.

5. A revolving propeller having propelling buckets provided with inner fixed
45 plates and outer pivoted plates and with arms connected with the latter, a cam operating upon said arms to adjust the pivoted plates of the buckets and means whereby
50 the cam may be adjusted to vary the points at which the buckets may be opened and closed, substantially as set forth.

6. A propeller comprising a reel or body having end heads and a shaft extending be-
55 tween the same, fixed bucket plates extending between said heads, pivoted bucket plates co-operating with their respective fixed plates to form propelling buckets, bars connecting the diametrically opposite piv-
60 oted bucket plates between the heads of the reel, a cam arranged between said heads and having means for operating upon the connecting bars and means for shifting said
65 cam, substantially as set forth.

7. A propeller comprising a reel or body having inner bucket plates spaced apart and lugs projecting outwardly therefrom, outer
70 bucket plates pivoted midway between their edges to said lugs and means for operating said pivoted bucket plates, substantially as set forth.

RICHARD H. MILTON.

Witnesses:

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C. A. BRAY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."