F. B. KUMMER.

FLYING MACHINE.

APPLICATION FILED NOV. 22, 1909.

968,860.

Patented Aug. 30, 1910.

2 SHEETS—SHEET 1.

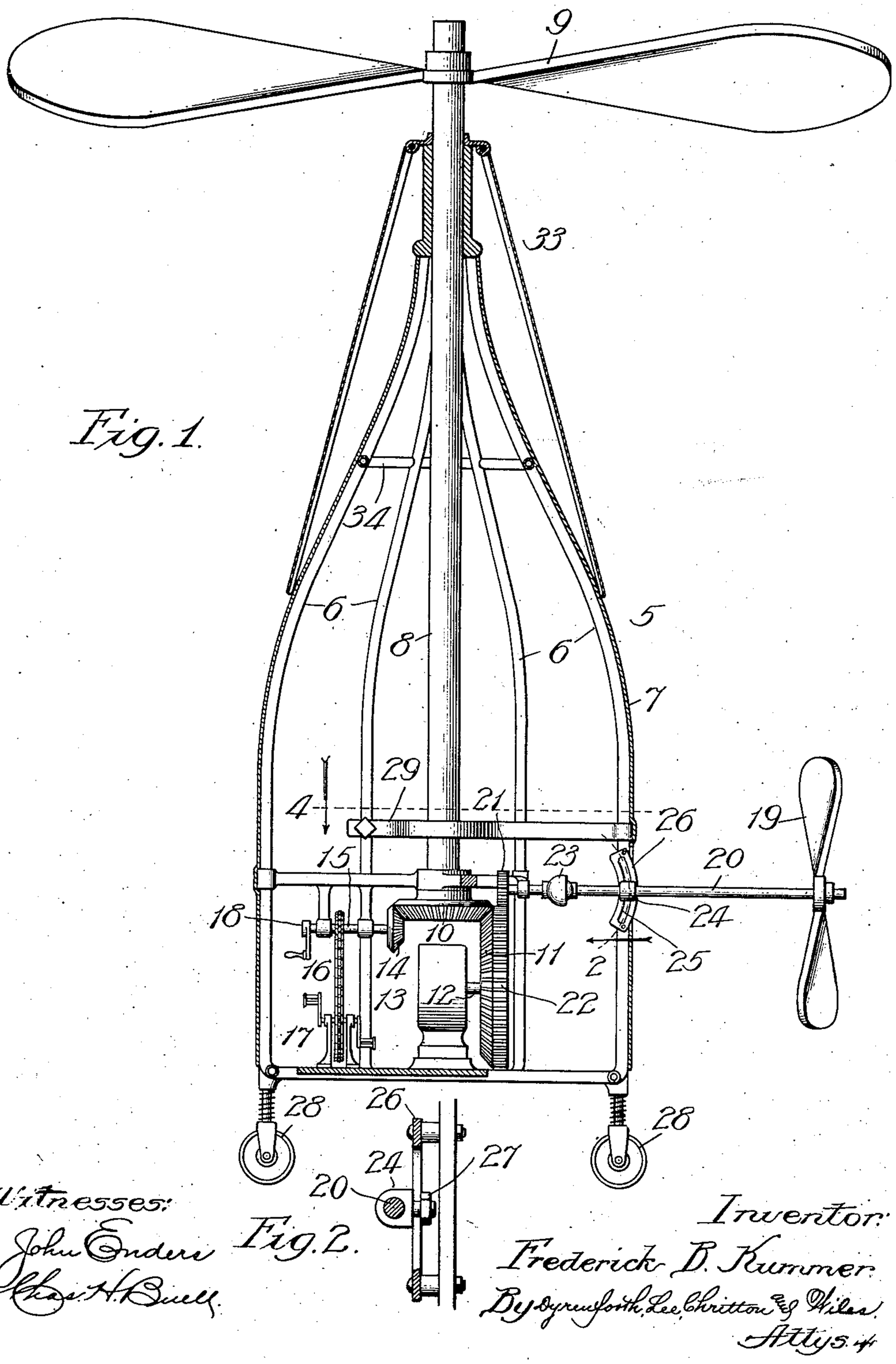

Fig. 1.

Fig. 2.

Witnesses:

John Enders

Chas. H. Bull.

Inventor:

Frederick B. Kummer.

By Byrnes Forth, Lee, Christton & Giles.

Attys.

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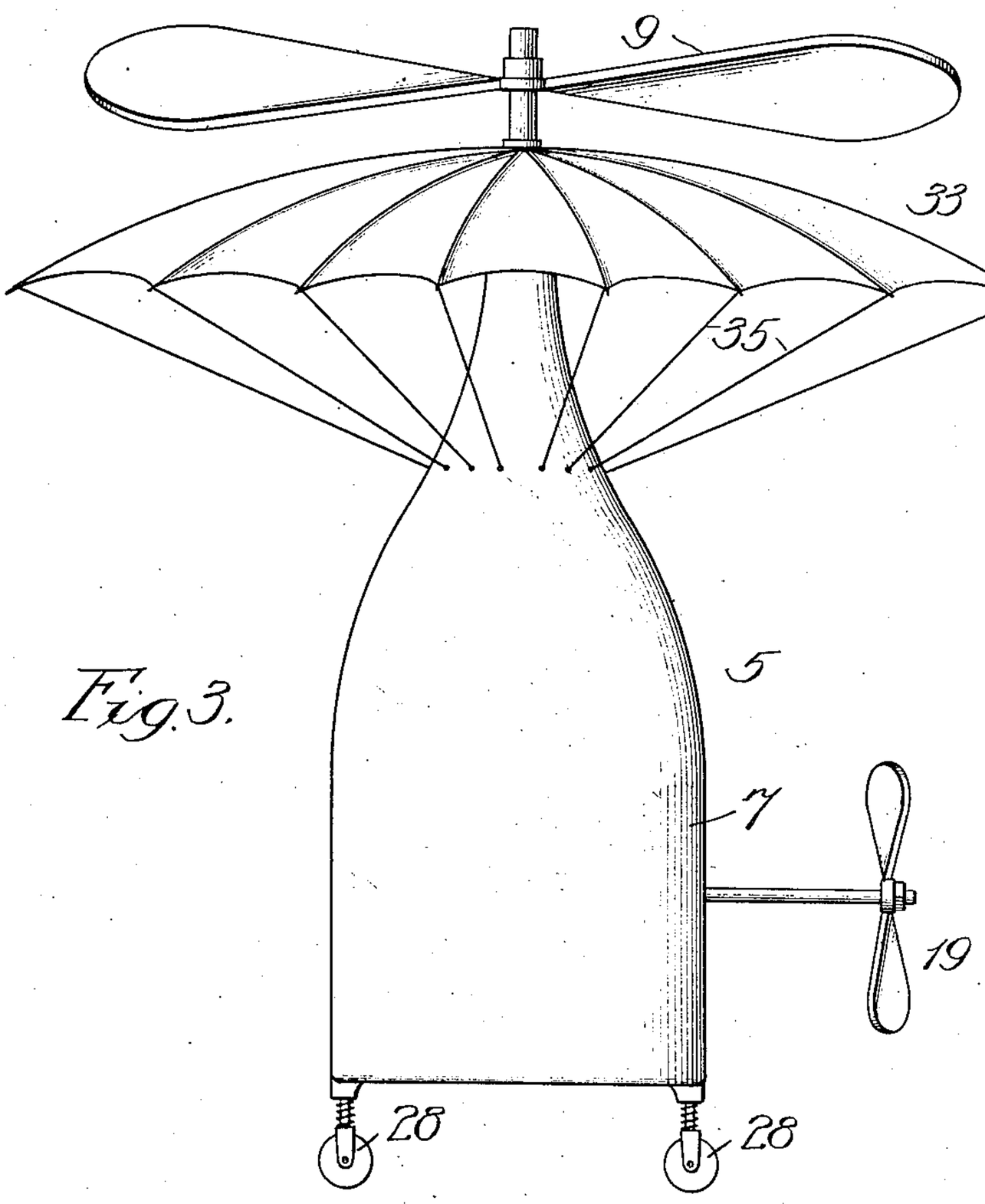

Fig. 3.

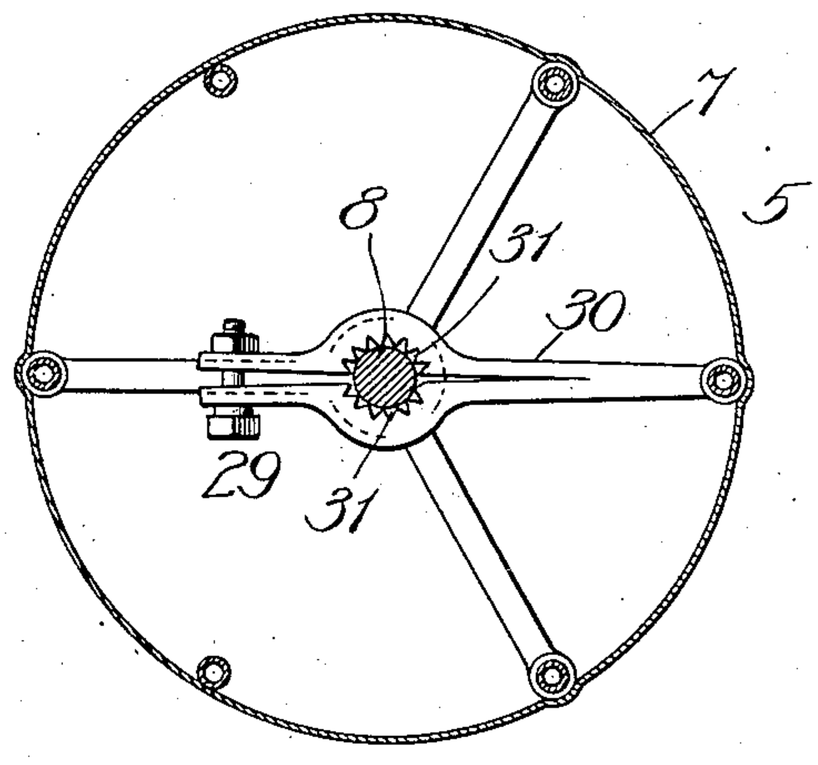

Fig. 4.

Witnesses:
John Enders
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Frederick B. Kummer.
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UNITED STATES PATENT OFFICE.

FREDERICK B. KUMMER, OF SHEBOYGAN, WISCONSIN.

FLYING-MACHINE.

968,860. Specification of Letters Patent. Patented Aug. 30, 1910.

Application filed November 22, 1909. Serial No. 529,203.

To all whom it may concern:

Be it known that I, FREDERICK B. KUMMER, a citizen of the United States, residing at Sheboygan, in the county of Sheboygan and State of Wisconsin, have invented a new and useful Improvement in Flying-Machines, of which the following is a specification.

My invention relates to an improvement in the class of flying-machines in which propellers are employed for raising and driving the suspended car, which is equipped with machinery for operating the propellers.

The primary object of my improvement is to provide a construction of the car which shall best adapt it to rise in the atmosphere with the minimum resistance therefrom; and my invention consists in the construction of the car and in details of construction and combinations of parts hereinafter set forth and claimed.

In the accompanying drawing—Figure 1 is a view in elevation of my improved flying-machine, showing the car in vertical section; Fig. 2 is an enlarged section on line 2, Fig. 1, showing a suitable device for fastening an adjustable propeller-shaft in adjusted position; Fig. 3 shows the machine in side elevation, and Fig. 4 is a section on line 4, Fig. 1.

The car 5 is, essentially, of upwardly tapering form to adapt it, in rising, to penetrate the atmosphere with the least resistance therefrom. The preferred form of the car is that illustrated, of a bottle; and it is constructed of framework 6, of light material, such as aluminum tubing, wood, or the like, which may be inclosed with a suitable sheathing 7, the latter being best composed of transparent or translucent material, such as isinglass or sheet-celluloid, to tend to render it more or less invisible when elevated in the air. The bottle-shaped car affords a chamber to hold one or more passengers and the machinery for operating it. A vertical rotary shaft 8 is journaled in the car to extend through its neck-portion, beyond which it carries a propeller 9; and a beveled pinion 10 in the lower end of the shaft in the car meshes with a beveled gear 11 on the drive-shaft 12 of a gas-engine, indicated at 13, a relatively smaller beveled pinion 14 meshes with the pinion 10 being supported on a shaft 15 journaled in suitable bearings in the car and having a sprocket-gear connection 16 with a pedaling-device 17 and also carrying a crank 18; so that in the event of the engine becoming inoperative, when it may be thrown out of the car to lighten it, the remaining machinery may be driven by power applied to the treadle-device or crank, or both, to actuate the lifting-propeller 9 and the driving propeller or propellers, one of which is represented at 19.

The propeller 19 is carried by a shaft 20 journaled in the frame-work of the car and carrying on its inner end a pinion 21 meshing with a gear-wheel 22 shown to be formed integral with the beveled gear 11. The shaft 20 is adapted to be adjusted vertically at different angles for steering purposes; and to that end it contains a ball-and-socket joint 23 and carries on its adjustable section a bearing 24 movable in the segmental slot 25 in a plate 26 secured on the car-frame, a fastening-device, shown as a nut 27, being provided to coöperate with the bearing 24 against the back of the segmental plate for securing the shaft in any adjusted position. On the base of the car are provided spring-pressed wheels 28, to take up shock in alighting on the ground or other landing surface.

A brake-device 29 is provided in the car for the shaft 8, by which to control its speed of rotation. A desirable construction of brake for the purpose is that shown, comprising a longitudinally-split arm 30 secured at one end to a member of the car-frame and provided in the enlarged opposing faces of its split section to encircle the shaft with coincident, semicircular serrated recesses 31 for gripping the shaft with greater or less friction, by tightening together the free, separated ends of the arm through the medium of a set-screw 32.

A parachute 33 may be provided, if desired, that shown being supported on the top of the neck of the car and fastened to a ring 34 on the frame-work thereof by cords or cables 35, to adapt it to be closed, as represented in Fig. 1, in the ascent of the machine and to open, by its descent, to the desired extent, as represented in Fig. 3.

What I claim as new and desire to secure by Letters Patent is—

1. A flying-machine comprising, in combination, a car of upwardly-tapering construction, a vertical shaft journaled in the car to extend through its narrower end, a propeller on the outer projecting end of said

shaft, and a brake-device in the car engaging said shaft, a flexible shaft on the car provided with means for adjusting it, a propeller on said flexible shaft, and an engine in the car geared to said shafts to drive the propellers.

2. A flying-machine comprising, in combination, a car of upwardly-tapering construction, a vertical shaft journaled in the car to extend through its narrower end, a propeller on the outer projecting end of said shaft, a flexible shaft on the car provided with means for adjusting it, a propeller on said flexible shaft, an engine in the car geared to said shafts to drive the propellers, and mechanism on the car geared to said shafts for driving them by manpower.

FREDERICK B. KUMMER.

In presence of—
A. WOLLRATH,
AMANDA YOOST.