July 21, 1925. 1,546,803

O. H. STERNBERG

BUOYING DEVICE FOR AEROPLANES

Filed Dec. 15, 1924

Fig. I.

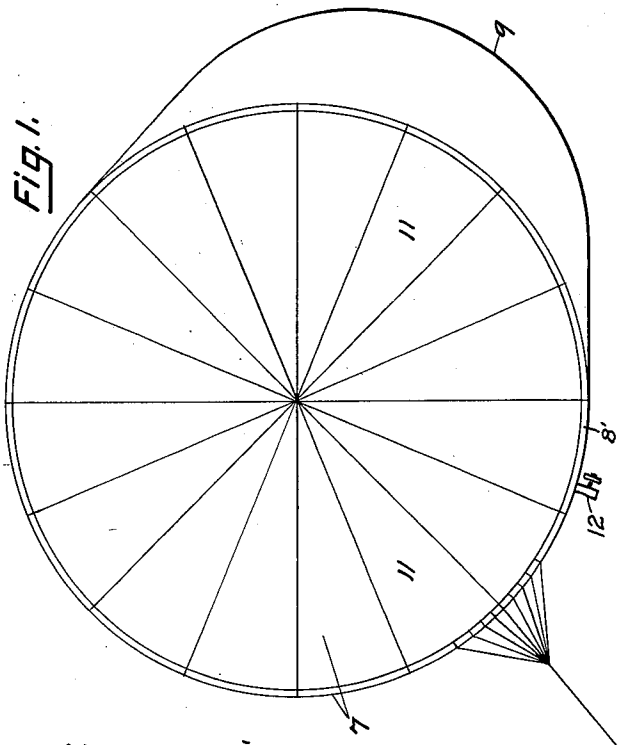


Fig. II.

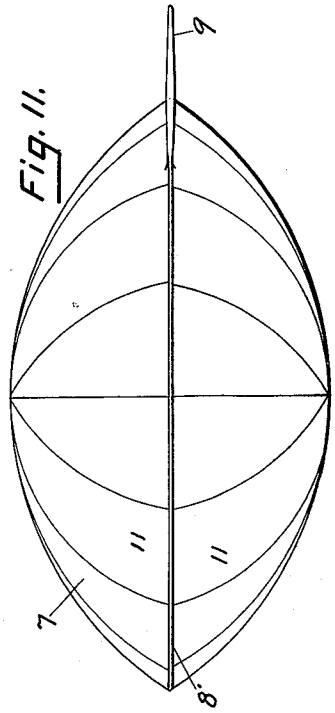


Fig. IV.

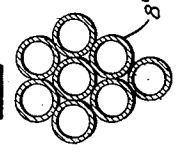


Fig. III.

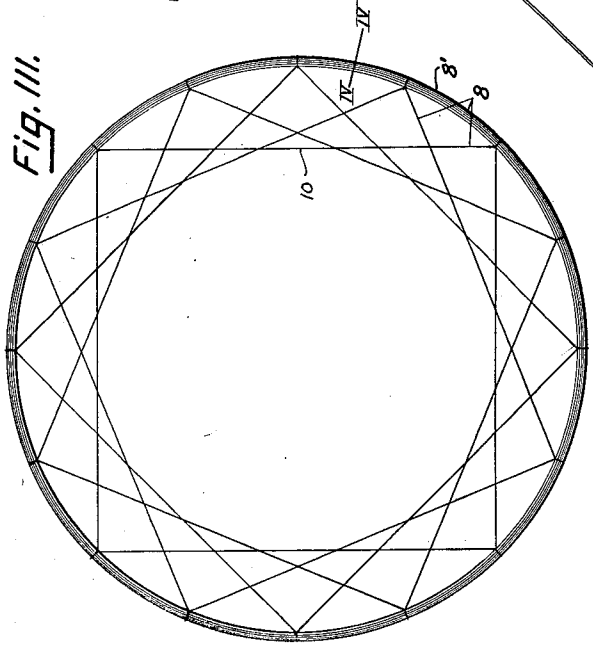
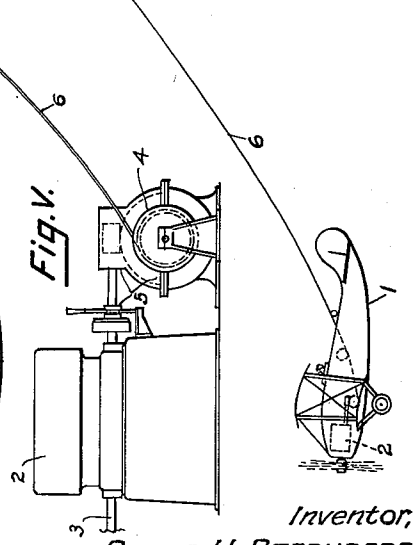


Fig. V.



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UNITED STATES PATENT OFFICE.

OSCAR H. STERNBERG, OF PORTLAND, OREGON.

BUOYING DEVICE FOR AEROPLANES.

Application filed December 15, 1924. Serial No. 755,979.

To all whom it may concern:

Be it known that I, OSCAR H. STERNBERG, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Buoying Devices for Aeroplanes, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to aeroplanes as a class.

The object of my device is to provide a buoyant balloon of common type to be secured to an aeroplane by a cable in a manner to allow the balloon to be placed at any convenient distance from the aeroplane, and thus to tend to support the aeroplane in the event its motive power fails to function, and prevent the aeroplane from dropping to the earth because of lack of sufficient control thereof. I accomplish these objects, as well as other advantages, by the construction, combination and arrangement of parts illustrated in the drawings which form a part hereof.

Fig. I is a side elevation of an aeroplane with balloon attached to same in operative position.

Fig. II is a top plan view of the balloon.

Fig. III is a side elevation of the frame of the balloon.

Fig. IV is a sectional view of the tubular rim of the frame on the line IV—IV in Fig. III.

Fig. V is an elevation of aeroplane motor and cable drum.

Like characters refer to like parts in the views.

An aeroplane 1, of common type, is shown in Fig. I, having a motor 2, also of common type. The motor is provided with the usual drive shaft 3. Within the aeroplane and adjacent to the drive shaft is secured a pivoted cable drum 4. The drum is rotated with clutch and gear mechanism 5 intervening between it and the drive shaft. One end of the cable 6 is secured to the drum in a manner to allow it to be reeled thereon. The opposite end of the cable 6 is secured in a convenient position to the lower forward part of a balloon 7. As illustrated, the balloon has a central, longitudinal, spine-like and circular frame 8 in vertical position, with an integral, outer fin 9 extending rearwardly of the balloon, functioning somewhat as a rudder. The frame rim 8′ may be of tubular construction as shown. Within the frame is a series of braces 10, geometrically arranged, to strengthen the frame rim. An envelope 11 is secured to each side of the frame and is of a material which will retain a buoyant fluid in the balloon, the latter being introduced into the envelope, or released therefrom by means of any convenient valve, such as the valve 12. When the envelope members 11 are secured to the frame as stated, the balloon has a general form like a reeled spindle.

It will now be seen that the inflated, buoyant balloon is attached to the aeroplane by means of the cable connected with the drum. When thus in operative position the balloon may be positioned at any desired distance from the aeroplane, which may be considered most practical for its object. The balloon is then towed by the aeroplane and the balloon fin tends to retain it in longitudinal position along its path of travel. The spindle form of the balloon offers the least resistance to the air while it is towed. The balloon tends to support the aeroplane above the earth and objects thereon, contact with which is dangerous. Being above and away from the aeroplane, the danger of fire to the balloon is obviated. The supporting balloon is intended to be of sufficient buoyancy to facilitate landing and rising of the plane. Primarily it is intended to prevent danger of a sudden descent of the plane against the earth or objects upon the same. It should also allow of a larger number of passengers and cargo to be carried, with greater safety insured to both.

While the balloon is shown of a spindle-like form, it may be circular or of any convenient form, without departing from the principle of my invention. It may also have multiple gas containers within the envelope.

It is well known that in dirigible, buoyant balloons the motive mechanism and passenger and cargo cars are suspended below, with steering and propelling mechanism to a large extent similarly positioned. It is in harmony with the principles involved in dirigibles that I apply the same to areoplanes as illustrated, with the added feature of having the gas bag far enough away to avoid fire risk.

The tubular frame may be of a single tubular arrangement or a series of tubes as

illustrated. In case the aeroplane motors fail to function I contend that the planes and steering apparatus of the aeroplane can be operated in a manner to retain it in an upright position while supported by the balloon. The cable may be attached to the aeroplane without the intervening reel mechanism.

I claim:

1. In a device of the kind described, the combination of, an aeroplane of common type, a supporting balloon of form like a double segment of a sphere, having a longitudinal and vertical central frame with envelope members secured to opposite sides thereof, and a cable having one end secured to the aeroplane, its opposite end to the balloon.

2. In a device of the kind described, the combination of, an aeroplane of common type, a supporting balloon of form like a double segment of a sphere, having a longitudinal and vertical central frame with envelope members secured to opposite sides thereof and a rigid fin extending from the frame rearwardly of the balloon, arranged to function to the balloon in the manner of a rudder.

OSCAR H. STERNBERG.

Witnesses:
J. C. STRENG,
S. P. OSBURN.