June 9, 1931. A. A. HOVSEPIAN 1,809,203

PRIME MOVER

Filed Sept. 29, 1930 2 Sheets-Sheet 1

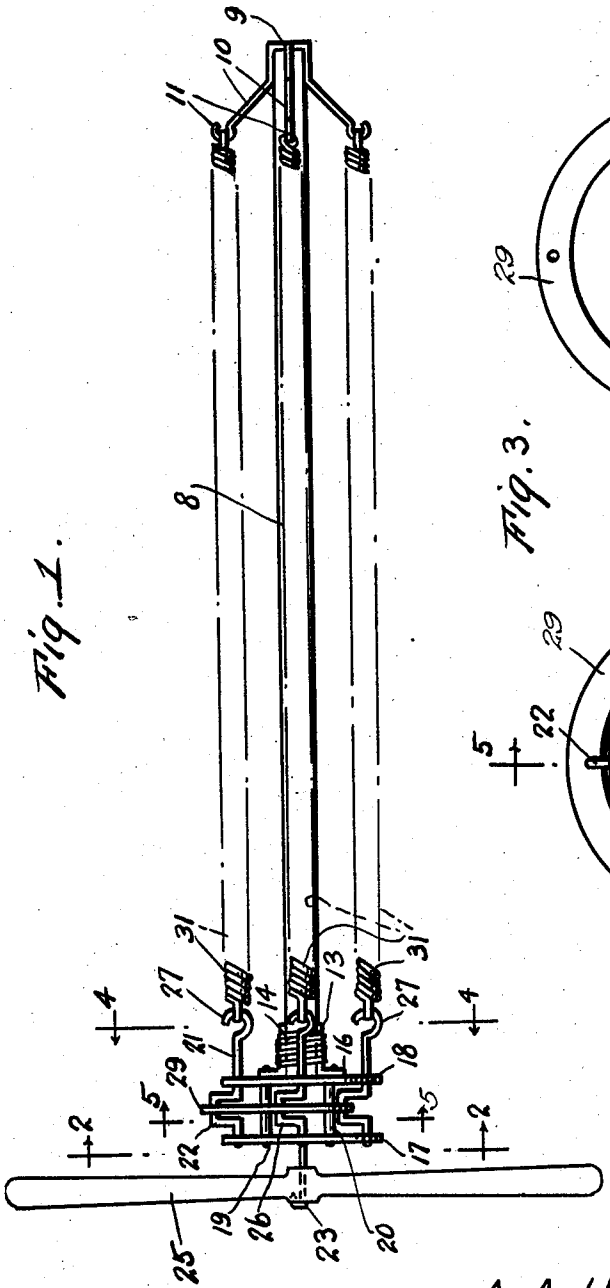



Fig. 1.

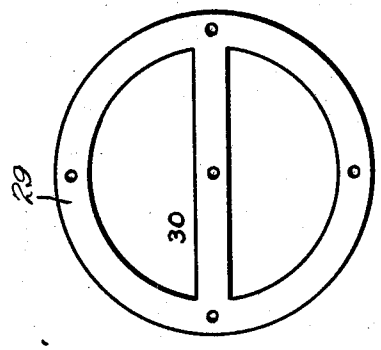



Fig. 3.

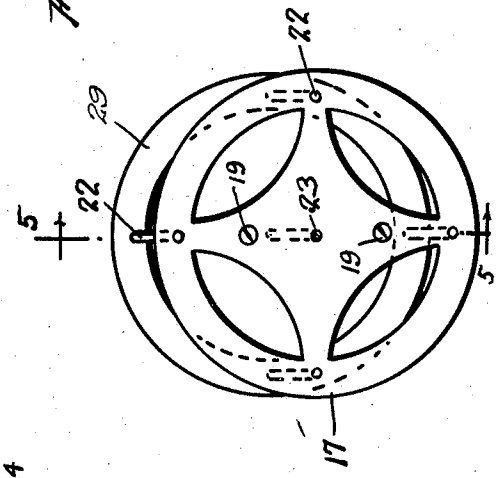



Fig. 2.

Inventor

A. A. Hovsepian

By Clarence A. O'Brien

Attorney

June 9, 1931. A. A. HOVSEPIAN 1,809,203

PRIME MOVER

Filed Sept. 29, 1930 2 Sheets-Sheet 2

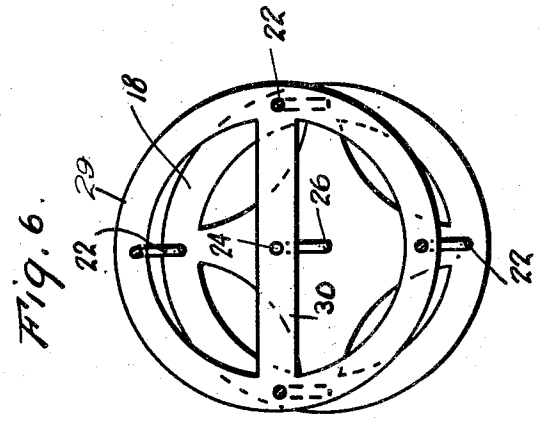



Fig. 6.

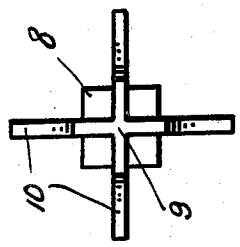



Fig. 7.

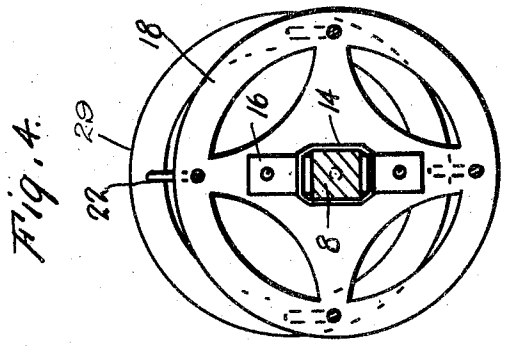



Fig. 4.

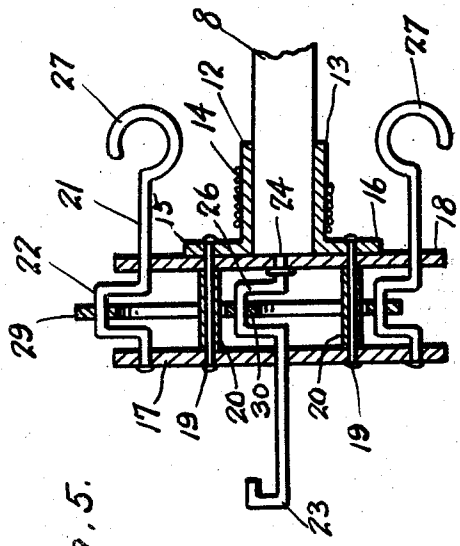



Fig. 5.

Inventor

A. A. Hovsepian

By Clarence A. O'Brien

Attorney

Patented June 9, 1931 1,809,203

# UNITED STATES PATENT OFFICE

ALFRED A. HOVSEPIAN, OF DEL REY, CALIFORNIA

## PRIME MOVER

Application filed September 29, 1930. Serial No. 485,253.

This invention relates to prime movers and is particularly adapted for toy aeroplanes.

Another object of the invention is to provide a propelling means for toy aeroplanes that is very simple in its operation, strong compact and durable, that occupies the minimum of space, that is very simple in its method of assembly and that is comparatively inexpensive to manufacture and very easy to install.

With the foregoing and other objects in view, the invention consists of a novel construction, combination and arrangement of parts as will be hereinafter more specifically described and illustrated in the accompanying drawings, wherein is disclosed an embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to without departing from the spirit and scope of the claims hereto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is a side elevation of the prime mover in accordance with the present invention,

Fig. 2 is a vertical section taken substantially on the line 2—2 of Fig. 1 and looking in the direction of the arrows,

Fig. 3 is a side elevation of the eccentric plate,

Fig. 4 is a vertical section taken substantially on the line 4—4 of Fig. 1 and looking in the direction of the arrows,

Fig. 5 is a detailed diametric sectional view taken substantially on the line 5—5 of Fig. 2.

Fig. 6 is a detailed vertical section taken substantially on the line 6—6 of Fig. 1, and

Fig. 7 is an end view of the device showing the fixed bracket on the end of the spindle.

In the drawings wherein for the purpose of illustration is shown the preferred embodiment of my invention, 8 indicates an elongated polygonal spindle on one end of which is rigidly coupled a spider bracket 9 having a plurality of radiating legs 10 extending laterally from the spindle and formed with hooks 11 on the ends thereof. To the forward end of the spindle 8 are secured a pair of L-shaped brackets 12, 13 having one leg of each bracket anchored to the spindle by means of a cord 14 wrapped about the spindle and the legs of the bracket. The outstanding legs 15, 16 of the brackets 12, 13 and formerly of the end of spindle 8 are a pair of longitudinally spaced plates 17, 18, that form bearing supports as will appear later. The plates are secured to the outstanding legs 15, 16 by means of long rivets 19, which extend through openings in the spaced plate and the outstanding legs, as will clearly appear in Fig. 5 of the drawings. The plates are placed apart by the sleeves 20 disposed about the intermediate portions of the rivets and the edges of the sleeves bear against the confronting spaces of the bearing plates 17, 18. The plates 17, 18 are preferably of circular formation.

Journalled through the marginal portions of the bearing plates are plural crank shafts 21 having the cranks 22 thereof in the space between the bearing plates 17, 18. These crank shafts 21 are radially spaced from the spindle 8, the crank shafts 21 being preferably four in number, corresponding to the number of legs 10 on the bracket 9. A drive shaft 23 has the rear end 24 thereof mounted in the center of bearing plates 18 in an opening provided therefor and an intermediate portion thereof is journalled in openings in the center of the forward bearing plate 17, while a portion thereof projects forwardly of the forward bearing plate 17 and has rigidly connected on the forward end thereof a propeller 25. The drive shaft 23 may be adapted for driving other objects besides the propeller 25. Moreover, the axis of the drive shaft 23 is on the center of the spindle 8. Between the bearing plates 17, 18 the drive shaft 23 is also provided with a bell crank 26.

The crank shafts 21 are each formed with hooks 27 that project rearwardly from the rear bearing plate 18 and are in longitudinal alinement with hooks 11 on the spider bracket 9.

Disposed edgewise in the space between bearing plates 17, 18 is a plate 29 preferably in the shape of the ring and the center of this ring is eccentric with respect to the axis of spindle 8, the drive shaft 23 and the center of

the bearing plates. Across the diameter of the plate 29 is a reinforcing rib 30, the center of which has an opening which receives the crank 26 on the drive shaft 23. The margins of the plate 29 are also provided with radially spaced openings through which are journalled the cranks 22 of the crank shaft 21.

Plural strands of elastic material such as rubber have the rear ends thereof anchored to the hooks 11, while the forward ends of the strands are anchored to the hooks 27 on crank shafts 21. Thus it will be seen that when the propeller or drive shaft is rotated in one direction, a twisting action on the plural crank shafts 21 will result, which in turn twists the elastic strands 31. When the twisting is completed, the strands will untwist, thereby imparting motion to the drive shaft 23 through the medium of the eccentric plate 29.

The present embodiment of the invention has been disclosed in considerable detail merely for the purpose of exemplification, since in actual practice it attains the features of advantage enumerated as desirable in the statement of the invention and the above description.

It is to be understood that by describing in detail herein any particular form, structure, or arrangement, it is not intended to limit the invention beyond the terms of the several claims, or the requirements of the prior art.

Having thus described my invention, what I claim as new is:—

1. A prime mover comprising a spindle, an eccentric plate mounted on one end of the spindle, a drive shaft journaled on the forward end of said spindle and having a crank thereon journelled to the eccentric plate, and twistable means having one end supported on the spindle and the other end associated with the eccentric plate for causing rotation of the drive shaft.

2. A prime mover comprising a spindle, a pair of longitudinally spaced bearing plates rigidly connected to one end of the spindle, plural crank shafts journalled through the plates having the cranks thereof between the plates, a drive shaft journalled through the plates, a plate journalled to the cranks of the crank shafts and the cranks of the drive shaft eccentric to the drive shaft and spindle, and twistable means coupled to the crank shaft and supported on the spindles to turn the crank shaft.

3. A prime mover comprising a spindle, a pair of longitudinally spaced bearing plates rigidly connected to one end of the spindle, plural crank shafts journalled through the plates having the cranks thereof between the plates, a drive shaft journalled through the plates, a plate journalled to the cranks of the crank shafts and the cranks of the drive shaft eccentric to the drive shaft and spindle, twistable means coupled to the crank shaft and supported on the spindle to turn the crank shaft, said twistable means extending longitudinally of the spindle for said eccentric plate mounted between the bearing plate.

In testimony whereof I affix my signature.

ALFRED A. HOVSEPIAN.