

Dec. 16, 1930.

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1,785,724

ELAPSED TIME REGISTER FOR AIRPLANES

Filed Aug. 17, 1928

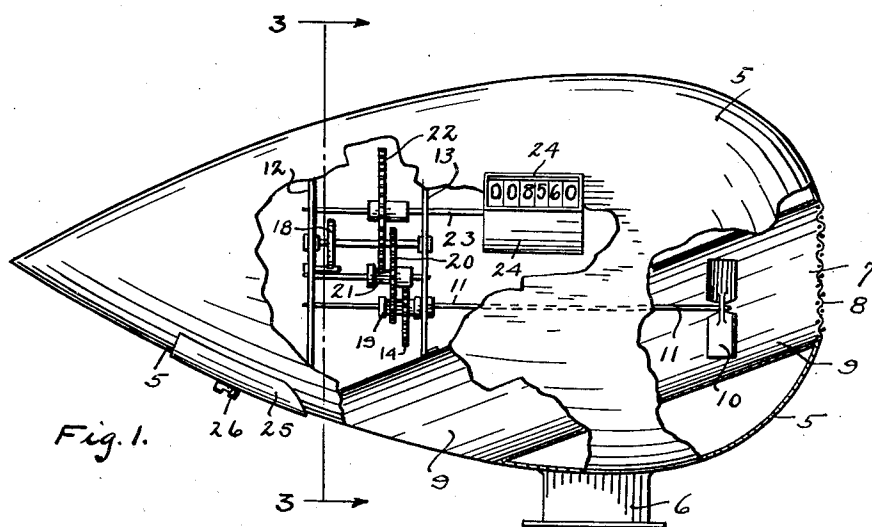


Fig. 1.

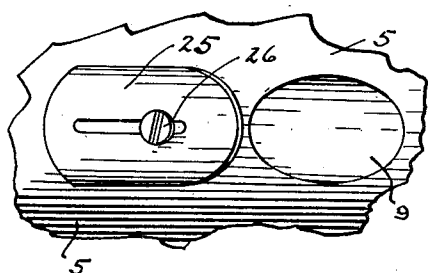


Fig. 4.

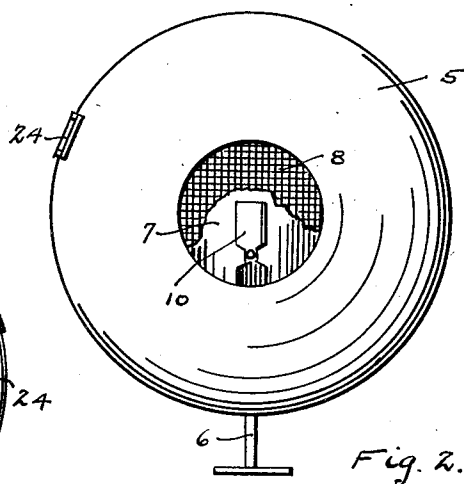


Fig. 2.

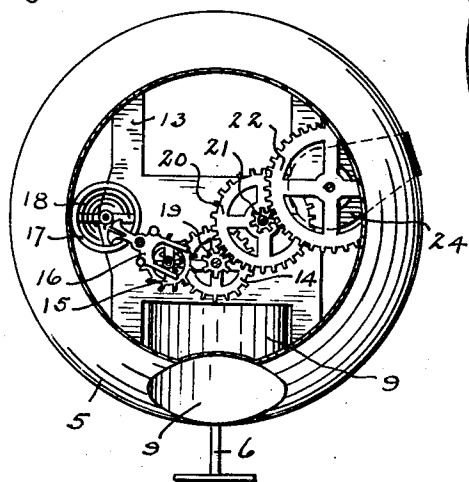


Fig. 3.

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UNITED STATES PATENT OFFICE

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ELAPSED-TIME REGISTER FOR AIRPLANES

Application filed August 17, 1928. Serial No. 300,196.

This invention relates to means for registering the length of time an airplane has been flown and particularly the number of hours the motor has operated; and has for its primary objects the provision of such means that will automatically start and stop with the airplane motor without having any mechanical connection therewith; that will indicate at all times the number of hours the motor has operated; and that is embodied in a very simple, reliable, and compact form.

Other objects will become apparent in the following description of the invention which is made in reference to the accompanying drawing, in which—

Fig. 1 is a fragmentary side elevation of a structure embodying my invention;

Fig. 2, a front elevation; and

Fig. 3, a vertical transverse section on the line 3—3 in Fig. 1; and Fig. 4, a detail in bottom plan view.

Like characters of reference indicate like parts throughout the several views.

I form a housing 5 preferably streamlined in shape, with a supporting bracket 6. In the blunt forward end of the housing 5 is an orifice 7 covered by a screen 8, from which orifice, a passage or wind tunnel 9 leads backwardly and downwardly to discharge from the under side of the housing 5.

A propeller or air screw 10 is carried on the forward end of the shaft 11 in the tunnel 9, and the shaft 11 is carried back horizontally through the top side of the tunnel 9 to be rotatably carried between the two spaced apart vertical standards 12 and 13 mounted within the housing 5.

A spur gear 14 is fixed on the shaft 11 and meshes with the hub gear of an escapement wheel 15 which is engaged in the usual manner well known to those versed in the art by the escapement lever 16, the balance wheel 17 having its oscillations effected by the hair spring 18.

A small hub gear 19 on the gear wheel 14 is in mesh with the intermediate gear 20, and the latter has a hub gear 21 which is in mesh with the larger hour wheel 22, all of said gears being carried on shafts rockably carried by the standards 12 and 13. The gear

22 is fixed on the shaft 23 which is directly connected to the cyclometer 24, the internal construction of which is well known to those versed in the art and is not here described. The face of the cyclometer 24 is presented through the side of the housing 5 to be readable from without the housing.

The device is preferably mounted on an airplane so that the orifice 7 is presented toward and lies within the slipstream of the propeller of the airplane whereby a current of air from the propeller blast enters the orifice and travels through the tunnel 9 and tends to cause the screw 10 to revolve.

The reduction in the train of gears 14, 19, 20, and 21 together with the effect of the balance wheel 17 limiting the rate of rotation thereof, as driven by the screw 10, is such that the gear 22 revolves once every hour, each revolution thereof causing an added hour to be shown on the total appearing on the face of the cyclometer. Variations of the flying speed of the motor on the airplane have little or no effect upon the accuracy of the hours registered within speed variations up to twenty miles per hour.

For very slow speeds or extremely high speeds, the mechanism can of course be designed to register accurately by proper design of the screw 10 and adjustment of the balance wheel 17. A convenient and effective method of adjusting the mechanism is afforded by means of a slide 25 carried on the bottom of the housing 5 which may be adjustably moved across the discharge opening of the tunnel 9 and selectively secured by the screw 26 to suitably vary the current of air passing therethrough so that the rate of rotation of the screw 10 is affected accordingly.

Having fully described my invention in the one form as now best known to me, I do not desire to be limited to the precise form as shown and described, nor any more than may be required by the following claims, since it is obvious that many structural changes may be made without departing from the spirit of the invention.

I claim:

1. A portable registering device comprising a housing, a wind tunnel through the

housing, an air screw in the tunnel, a guard at the mouth of the tunnel to prevent manipulation of the screw, a registering mechanism driven by the screw and means limiting the rate of rotation of the screw.

5 2. A portable register device comprising a housing, a wind tunnel extending from the front rearwardly and downwardly through the housing, an air screw in the tunnel, a
10 guard in the mouth of the tunnel to prevent manipulation of the screw, a register mechanism driven by the screw, means limiting the rate of rotation of the screw and a slide varying the opening through the tunnel.

15 In testimony whereof I affix my signature.
CLYDE C. BRANT.

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