W. D. PEARSON.

RECORDING DEVICE.

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1,363,913.

Patented Dec. 28, 1920.

Fig. 1.

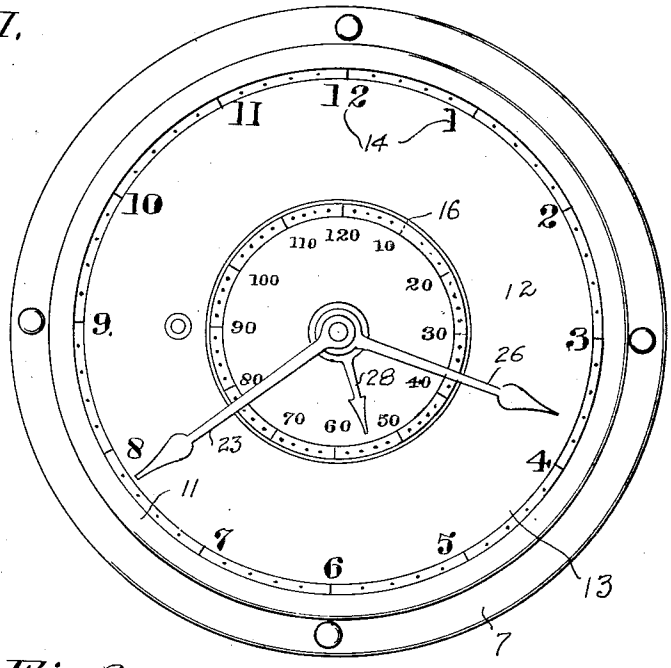
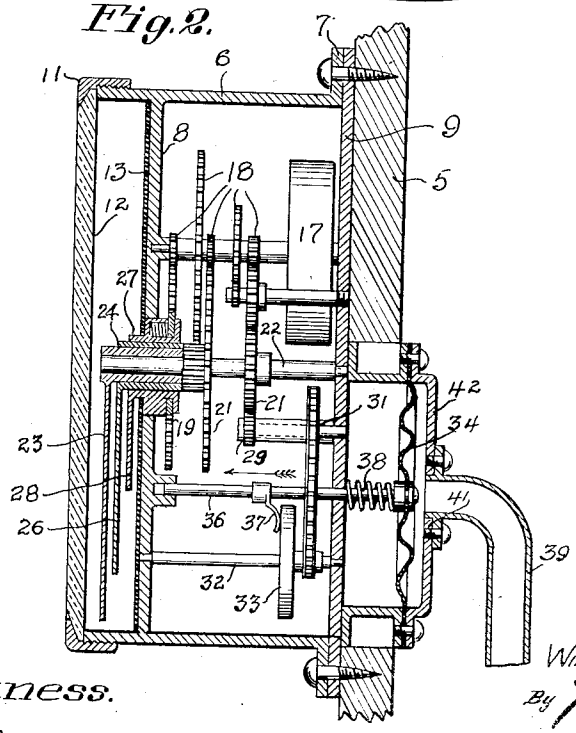


Fig. 2.



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RECORDING DEVICE.

1,363,913. Specification of Letters Patent. Patented Dec. 28, 1920.

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To all whom it may concern:

Be it known that I, WILLIAM D. PEARSON, a citizen of the United States, and resident of the city of Portland, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Recording Devices, of which the following is a specification.

The principal object of this invention is to produce a recording device which may be used to advantage in recording the hours or periods of operation of a machine with which the device is associated.

Another object is to produce a device which will be automatic in operation and will start recording automatically as soon as the device to which it is attached commences to operate and will cease recording as soon as the device ceases operating.

In many instances it is very desirable to know the exact number of hours that a piece of apparatus operates. For instance,—in flying machines it is essential to know the total number of hours that the engine has operated as it is necessary to have such engines overhauled after a stipulated number of operating hours, in order to avoid mechanical defects which would be serious to the aviator should the machine cease to properly function.

Another object of this invention is to produce a recorder which will be simple in operation and which may be manufactured at a reasonable cost.

Another object of this invention is to produce an automatic control which will be positive in operation and one which will operate under all conditions.

Other objects and advantages will be seen from the detail description which follows.

The accompanying drawing illustrates the preferred manner of reducing the invention to practice. In said drawing Figure 1 is a front elevation of my recorder; Fig. 2 is a cross section of Fig. 1 of my recorder.

In the drawings, like numerals refer to corresponding parts in the two views.

Numeral 5 designates an instrument board which may be conveniently located either in a vehicle or upon a wall, the same simply serving the purpose of supporting my recorder.

Numeral 6 designates a circular casing having a flange 7 and a central partition 8, a backing piece 9, which is adapted to be attached to the shell 6 in a convenient manner.

At 11 I have shown a ring screw threaded upon the shell 6 serving the purpose of holding a glass 12.

The numeral 13 designates a dial carried upon the partition 8. This dial is divided around its outer margin so as to represent the hours of the day, as indicated at 14. This dial 13 also carries an inner circular dial, which is divided into 120 divisions, which indicate the total number of hours as will be hereinafter described.

At 17 I have shown a spring mechanism for driving a train of gears 18, which gears in turn mesh with a series of gears 19, 20 and 21; the gear 20 being mounted upon a shaft 22, which shaft carries a hand 23 at its outer end. The gear 21 is mounted upon a stub shaft 24 journaled upon the shaft 22 and carries a hand 26 at its outer end. The gear 19 is mounted upon a second shaft 27 which is journaled on the stub shaft 24 and carries at its outer end a hand 28. The hands 23 and 26 correspond to the minute and hour hands of an ordinary clock while the hand 28 is adapted to move over the dial having the 120 divisions to indicate the total hours operated.

At 29 I have shown a gear meshing with the gear 20 and connected by a chain 31 to a shaft 32 upon which a friction disk 33 is mounted.

The numeral 34 designates a diaphragm having a rod 36 secured to its center portion and extending forwardly and slidably supported in the partition 8. This rod 36 carries a finger 37, which is adapted to contact with the friction disk 33 as will be later described.

A spring 38 encircles the rod 36 and has one end bearing against the diaphragm 34 and has its opposite end bearing against the backing piece 9.

At 39 I have shown a pipe having communication with the diaphragm 34 through a suitable opening 41 formed in a cover plate 42. This pipe 39 leads to the lubrication system of a motor so that pressure may be transmitted therethrough.

In operation, I place my device upon the instrument board as before mentioned and connect the pipe 39 to the forced feed lubricating system of a motor or like device. I then wind the clock mechanism and set the

hour and minute hands where desired, setting the small hand 28 at zero.

As soon as the motor to which this device is attached commences to operate pressure will be transmitted through the pipe 39 to the diaphragm 34, which will tend to compress the spring 38 and move the rod 36, thereby moving the finger 37 out of contact with the friction disk 33. This movement will allow the spring mechanism and gears attached thereto to rotate, which rotation will cause the hour and minute hands to travel about the dial and at the same time will cause the hand 28 to travel about its dial, but as the hand 28 travels slower than either the hands 23 or 26 it will record the total number of hours that the device has been operating, with the result that an accurate record may be kept of the number of hours that the machine having my device connected thereto has been in operation.

I claim:

1. In a device of the character described, a combination of an internal combustion engine having a forced feed lubricating system, a recording device remotely positioned from said engine, said recording device comprising a clock mechanism having an hour dial and a total hour dial, hands capable of being moved over said dials, and a diaphragm capable of being moved through pressure derived from said engine lubricating system for the purpose of starting and stopping the action of said clock mechanism.

2. In a recording device, a suitable casing, a clock mechanism mounted therein, a dial mounted thereon, said dial having hour markings thereon and total hour markings concentrically placed with relation to said hour markings, hands capable of being moved over said dials through the medium of said clock mechanism, one of said hands moving over said total hour dial at a speed greatly reduced from that of either of the other hands, a diaphragm attached to said casing, said diaphragm having a rod extending forwardly therefrom a finger attached thereto, said finger being adapted to contact with a friction member for the purpose of controlling the movement of said mechanism, and means for conducting a fluid pressure to said diaphragm for the purpose of moving said finger away from said friction member.

WILLIAM D. PEARSON.