

March 15, 1932.

J. V. BOSQUE

1,849,447

SPEEDOMETER

Filed Aug. 28, 1929

2 Sheets-Sheet 1

Fig. 1.

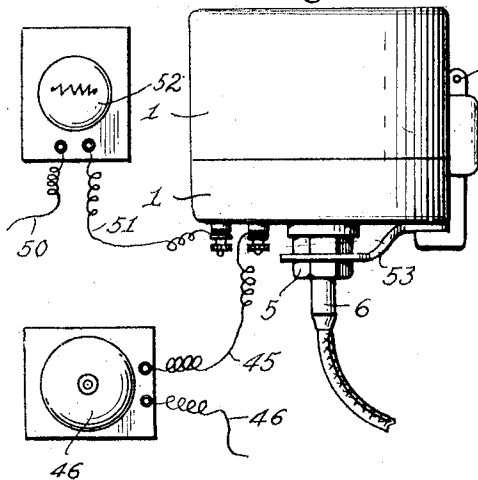


Fig. 2.

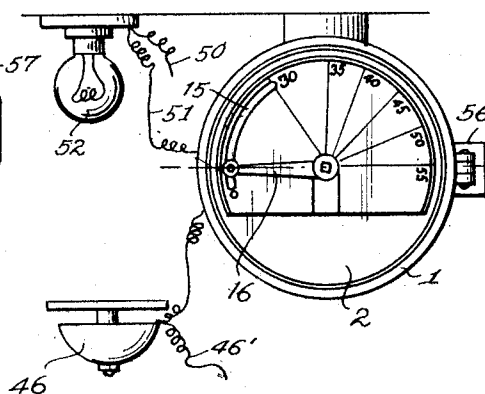


Fig. 3.

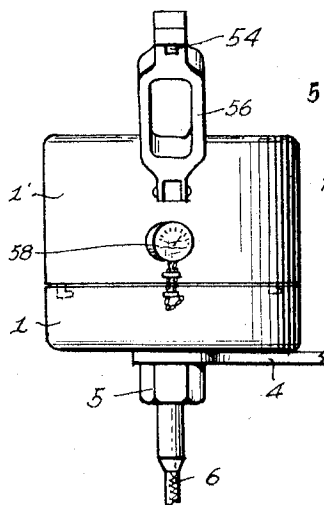


Fig. 4.

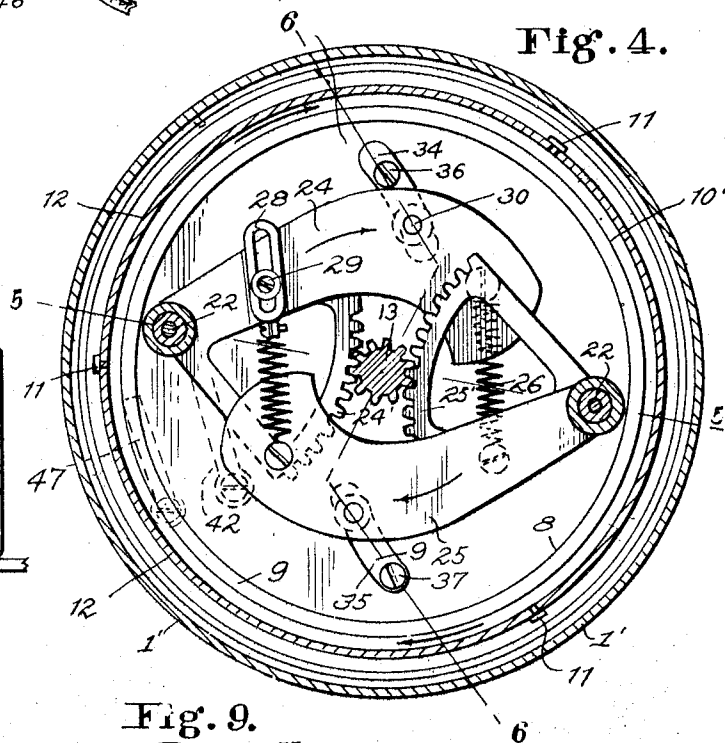


Fig. 9.

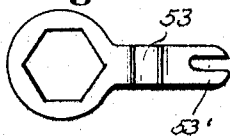


Fig. 7.

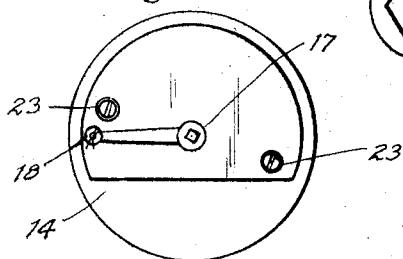
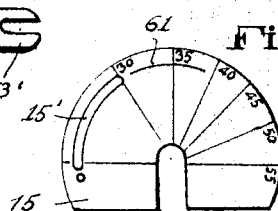


Fig. 8.



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2 Sheets-Sheet 2

Fig. 5.

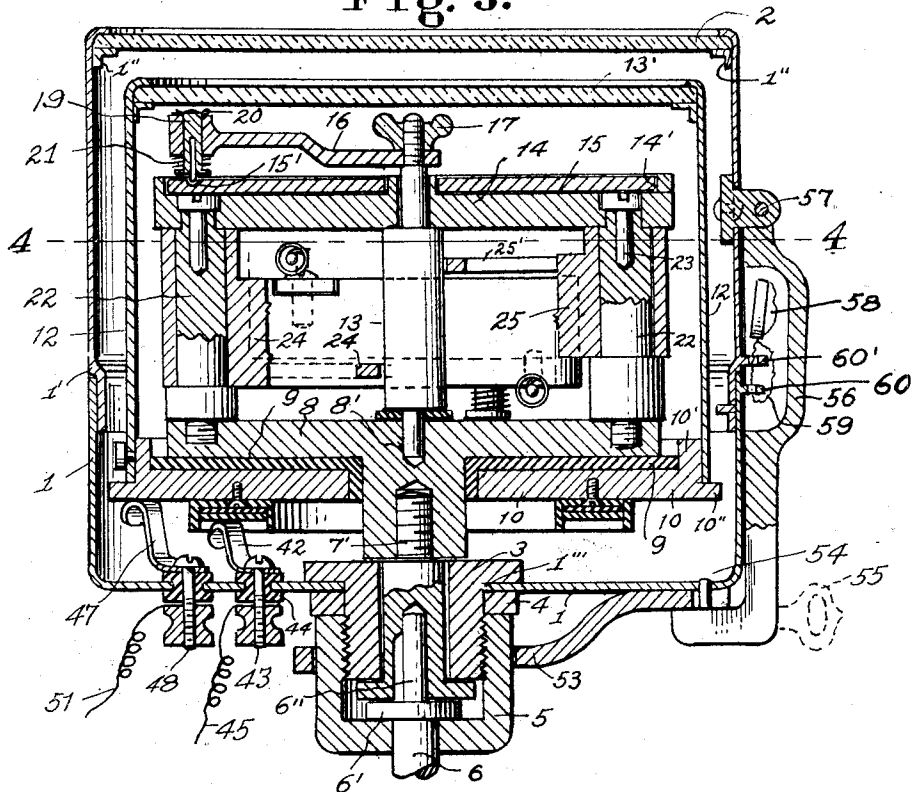
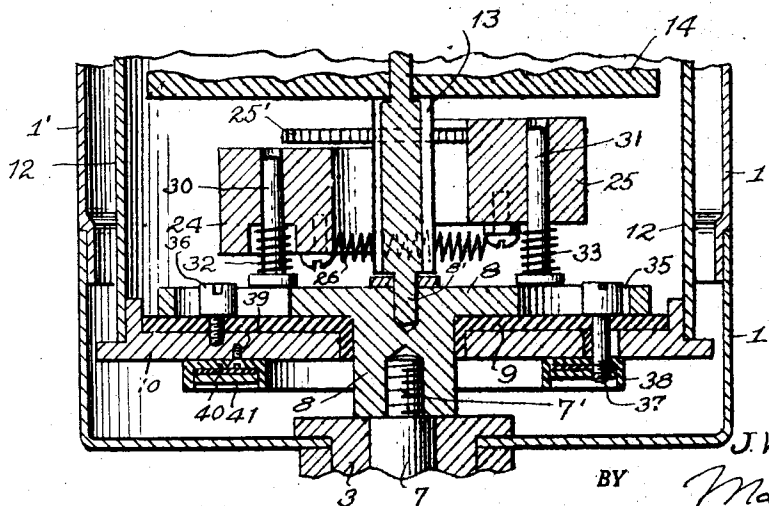


Fig. 6.



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UNITED STATES PATENT OFFICE

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SPEEDOMETER

Application filed August 28, 1929. Serial No. 389,065.

This invention relates to speed indicating devices or mechanisms and more particularly to that forming the subject of Patent 1,421,390, of which I am the co-inventor, and has for its principal object a considerable improvement in the construction of this device, by means of which it can function efficiently and with precision in any kind of terrain or, notwithstanding sudden shocks or stoppage, efficiency being maintained throughout its travel.

Another object of the invention is to provide an indicating apparatus which records the speed when the driver of the vehicle exceeds the limit fixed by the traffic laws, and at the same time the mechanism remains locked so that it is impossible to remove and change it, without breaking it or a seal which protects the lock.

Another object of the invention is to provide a speedometer wherein, previous to the moment of actuating the recording device, the conductor or driver is advised that he is about to travel at the maximum allowed speed, first by a luminous signal and then by the sound of a bell or other acoustic apparatus.

Other objects and advantages derived from the invention will appear from the following specification, particularly to those skilled in the art to which the invention pertains, with reference to the figures of the accompanying drawings, wherein the same reference characters represent the same elements.

On said drawings:

Fig. 1 is a lateral elevation of the device forming the subject of the present invention.

Fig. 2 is an upper plan view thereof.

Fig. 3 is a lateral elevation of the device showing the seal protector separate.

Fig. 4 is a cross section on line 4—4 of Fig. 5.

Fig. 5 is a vertical diametral section on line 5—5 of Fig. 4.

Fig. 6 is a vertical section on line 6—6 of Fig. 4.

Figs. 7 and 8 are detail views of the speedometer, and

Fig. 9 is a detail view of a member used to

prevent intentional disconnection of the apparatus.

1 designates the lower part of an outer cylindrical case or housing which is fitted by a bayonet joint to the upper part 1' thereof, which is open above and provided with an annular socket 1'', to which a top 2 of glass or transparent material is affixed. The lower part of section 1 of the housing has an opening 1''' having therein a bushing 3 whose upper part has a flange, by means of which it is seated in the edges of opening 1''' and is threaded exteriorly, there being affixed to this bushing a bracket 4 and screwed on the bushing is a nut 5 having the lower part open, and through which passes the upper end of a flexible shaft connected with the transmission of the vehicle (not shown); the said end of shaft 6 which extends into nut 5 having an integral collar 6' and terminating in a reduced portion 6'' which is keyed in a bushing 7 which is mounted loosely in member 3, and the upper part of which terminates in a threaded pin 7' screwed to the opening of a plate 8 which, through an intermediate disc 9 of insulating material, bears on another plate 10 having a raised edge 10'' on which there is supported and attached, by means of flanges (bracket or the like) 11, and by bayonet joint a second interior cylindrical housing 12, spaced from the outer sectional housing 1—1', this housing 12 being covered by glass or transparent material 13' which is attached to a double annular flange 12' on the upper opening of said housing 12.

Centrally, at its upper part, the plate 8 has an opening 8' in which is fitted the lower pivot of a vertical cylindrical member 13, whose upper pivot passes through an opening existing at the center of a plate 14, the upper portion of which forms a seat 14', upon which there is supported a disc 15 of cardboard or similar material, of the form shown on Fig. 8, and graduated as shown on that figure, having a groove or depression 15'', the purpose of which will be explained hereinafter.

The upper pivot of pinion 13 which projects from plate 14 terminates in a reduced thread, to which is screwed a support arm 16

retained by a nut 17, and said arm carrying at its end a pencil support 18 with a pencil 19, the pencil support being held to the arm by means of a connection 20, the pencil being forced down in contact with disc 15 by means of an easy acting spiral spring 21.

Affixed between plates 14 and 8 are the posts 22, attached to plate 14 by means of screws 23, and to plate 8 by their reduced end threads, in holes drilled in the upper surface thereof. Affixed to each post 22 is a fly weight 24 and 25, to which are connected toothed sectors 24' and 25' which mesh with the pinion 13, one end of the fly weight 24 being connected to the body of the other fly-weight 25 by a spiral spring 26, and the end of the other flyweight 25 being affixed to the end of a spiral spring 27, the other end of which is attached to a slide 28 slidably mounted on a stud 29 attached to the body of the other fly weight 24.

Each of the flyweights 24 and 25 are provided with bores and loosely mounted therein are spindles 30 and 31 having contact heads upon their lower ends which are urged downwardly by spiral springs 32 and 33 which serve to yieldably retain the heads in the widened grooves 34 and 35 formed in the plate 8 so as to form a connection with contact heads 36 and 37 carrying the plate 10 and are passed through the insulating disc 9. The head 37 passes through the disk 9 and also through the plate 10 and has fixed thereto a flange 38 formed of insulating material, which is attached by means of screws 39 to the lower surface of the plate 10, said screws being insulated by the interposition of an insulating layer 40, on which is positioned a metal surface 41, to which is attached the body of said contact 37. Contacting with the part 41, is a plate spring 42 attached to a screw 43 mounted by means of an insulating sleeve 44 passing through an opening in the lower part of housing 1, and to this is attached a conductor 45 which is connected with a bell or other adequate alarm mechanism, connected by its other conductor 46' with a suitable source of electricity (not shown).

47 designates a spring contact connected to the lower part of plate 10 and affixed to a screw 48 mounted in an insulating sleeve 49 passing through an opening in the lower part of housing 1 and attached to said screw there is a conductor 51 connected with a bulb or other adequate luminous signal, connected by the other conductor 50 to the same source of electricity as bell 46.

Connected to the socket 5 is the bracket or clamp in which terminates an arm 53, shown in detail on Fig. 9, whose end 53' is connected with the bolt 54 of a locking mechanism adapted to operate by means of a key 55, a cover plate 56 forming part thereof, the upper end of which is shown at 57 at the upper part 1' of the sectional casing 1—1' cover-

ing a conventional seal 58 which unites the ends of a wire 59 which passes through eyelets in the lugs 60 and 60' projecting respectively from the fitted edges of the two sections 1 and 1' of the outer housing.

The operation of this apparatus is as follows:

Assume that it is adequately installed at the front part of the automobile, in front of the driver, or on the instrument board and preferably where there is no possibility of its being in the way, and the protective plate 56 covering the seal 57, as shown on Fig. 5.

While the vehicle travels at a speed permitted by traffic regulations, flyweights 24 and 25 will be displaced due to the meshing between gearing sectors 24' and 25' and the pinion 13. In this condition the coil 27 will not be stretched because one of its ends, as already explained, is fastened to the slidable-block 29 sliding on the guide-slot 28, and it will be rendered in contracted position, while slidable-block 29 will slide along slot 28, thus only stretching the coil 26, the ends of which are fastened to counterweights 24 and 25.

During that travel, the pencil 19 would remain inactive and slide in groove 15' of disc 15 without marking on the disc, but in exceeding the speed permitted, the pencil 19 would come out of groove 15' and rest upon disc 15, commencing to mark down the excess speed as shown on Figure 8.

As soon as the speed is increased and becomes excessive, slidable-block 29 will have been stopped at the inner end edge of the slot 28 and the coil 27 will turn start to stretch. The centrifugal force which causes the displacement of flyweights 24 and 25 does not act in direct proportion with the movement or speed impressed or given the vehicle, but in increasing progress, for which reason the tension of coil 27 in stretching, additional to the tension of the coil 26 will offer greater resistance to the displacement of the flyweights, thereby avoiding that the pencil 19, which will have been forced out of groove 15', marks down in unequal traces on disc 61, but that this be even, thus attaining evenness in the various traces recorded by the excess speed on disc 61.

It is to be noted that the pencil 19 will be moving when displacing the flyweights 24 and 25 during the vehicle's travel, but while this travel is normal, it will continue moving in the groove 15' without recording on the disc, and only when the speed be an excessive one, will it move out of said groove and commence to record the excess speed on the graduated disc 15, as illustrated by 61 on Figure 8. The coil 27 will act as a brake when pencil 19 travels, marking down the excess speed on disc 15, causing the regularization of the recordings of said pencil on this disc.

Before this takes place, however, the contact 30 of flyweight 24 connects with contact

head 36, which is connected with the plate 10 in order to close a circuit with the bulb or luminous signal 52 through contact of spring 47 and conductor 51, and the signal is illuminated.

However, if the speed still increases, by reason of the driver's inattention, before the mark is made on disc 15, the flyweights 24 and 25 will continue to move, and the contact 31 of flyweight 25 will also move through centrifugal force and connect with the head 37 which is connected with the surface 41, then producing a new circuit with the bell or acoustic signal 46 through contact of spring 42 and conductor 45, and thus the driver can not exceed the speed limit without being informed thereof.

In case of shocks there may take place a reactionary movement of the flyweights 24 and 25 in opposition to the centrifugal movement thereof, but such reaction in one or the other flyweight will be absorbed by the opposite movement in the other, there being a neutralization or equilibrium between them which is maintained during all operative phases, thus maintaining the efficiency of the apparatus.

When an infraction (of the speed laws) has been discovered by examining the disc 15 through the glass tops 2 and 13' the authorized agent will disconnect the securing plate 56 by means of a suitable key 55, raising said plate by means of its hinge 57, as shown on Fig. 3, and examining the seal to see if it has been broken or changed. The upper part 1' of the outer casing is then removed, casing 12 then withdrawn, disconnecting it from the pins 11, leaving it then uncovered at the interior of the device. The disc 15 is then removed marked with the mark of infraction 61, and another inserted, the parts then being adjusted in their initial position, a new seal is then put on the ends of wire lock 59 which is covered by the protective plate 56, which is held in place by means of the bolt 54.

It is to be noted that when the nut 5 is held by the bracket or strap 53, it is impossible to disconnect the mechanism from the transmission of the vehicle or from any other source of power.

It is also possible to modify the construction in that the bracket 53, instead of being connected with the end fork to the nut 54, may be connected directly to lugs 60 and 60' and retained there by means of a wire 59, to which the seal 58 is affixed.

It is also apparent that the constructional details of the apparatus may be modified without departing from the essentials of the invention, to which I do not limit myself.

I claim as my invention:

1. A device of the class described comprising a casing, a plate therein, a pinion associated with the plate, a pair of flyweights pivoted eccentrically to the plate and hav-

ing geared connections with the pinion, a graduated disk rotatable with the plate, a marking device connected with the pinion and operable by the centrifugal action of the flyweights to mark upon the disk varying speeds developed by a source of power for driving the plate.

2. A device of the class described comprising a casing, upper and lower plates thereon, a source of power for rotating the plates, a graduated disk mounted upon the upper plate, a pinion journaled in the plates, a pair of flyweights pivotally connected externally between the plates and having geared connections with the pinion, a marking device connected with the pinion adapted to mark upon the disk various speeds developed by the source of power, and a regulatable connection between the counterweights to neutralize the effect of inertia and control the movement of the marking device.

3. A device of the class described comprising a casing, a plate therein, a source of power for rotating the plate, a graduated disk upon the plate and rotatable therewith, said disk having an arcuate groove therein, a pinion associated with the plate, an arm fixed with the pinion, a spring-pressed pencil carried by the arm and normally engaged in the groove, a pair of flyweights pivotally mounted on the plate and having geared connection with the pinion, said flyweights being operable by centrifugal action to move the pencil from the groove when the source of power exceeds a predetermined speed to cause the pencil to mark upon the disk, and spring connections between the flyweights, as and for the purpose set forth.

4. A device of the class described comprising a casing, upper and lower plates mounted therein, a source of power for rotating the plates, a pinion mounted between the plates, a graduated disk upon the upper plate having a groove therein, an arm fixed to the pinion, a spring urged pencil carried by the arm and normally engaged in the groove, posts disposed eccentrically between the plates, flyweights pivotally connected to the posts and having geared connections with the pinion, a spring having both of its ends fixed to the flyweights, a second spring having one end fixed to one flyweight and its other end slidably connected with the other flyweight, as and for the purpose set forth.

In testimony whereof I affix my signature.

JOSÉ VIDAL BOSQUE.