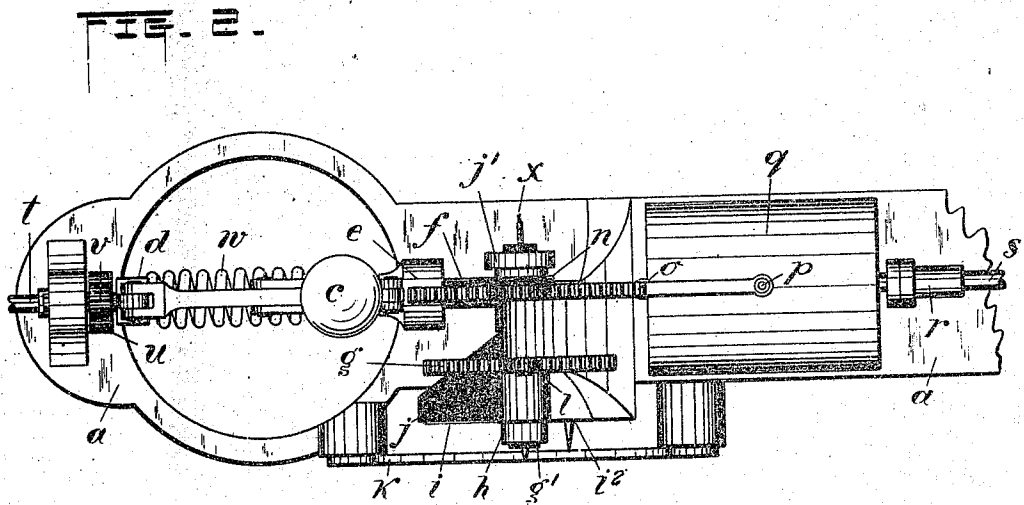
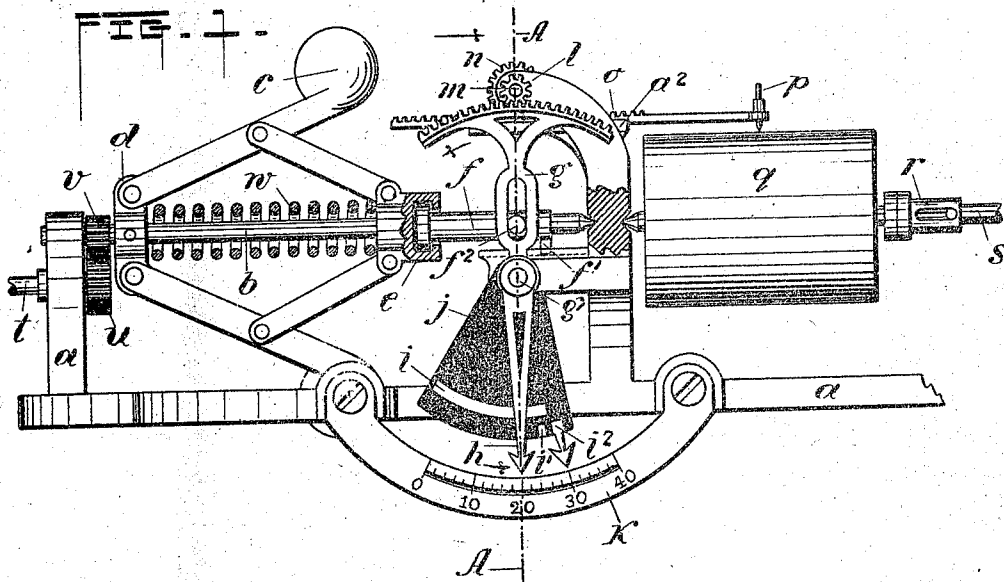


J. T. WHALEN.
INDICATING AND RECORDING DEVICE.
APPLICATION FILED JUNE 27, 1907.

Patented Nov. 23, 1909.
2 SHEETS—SHEET 1.

940,761.



WITNESSES:

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INVENTOR:

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by Alfred P. Elton

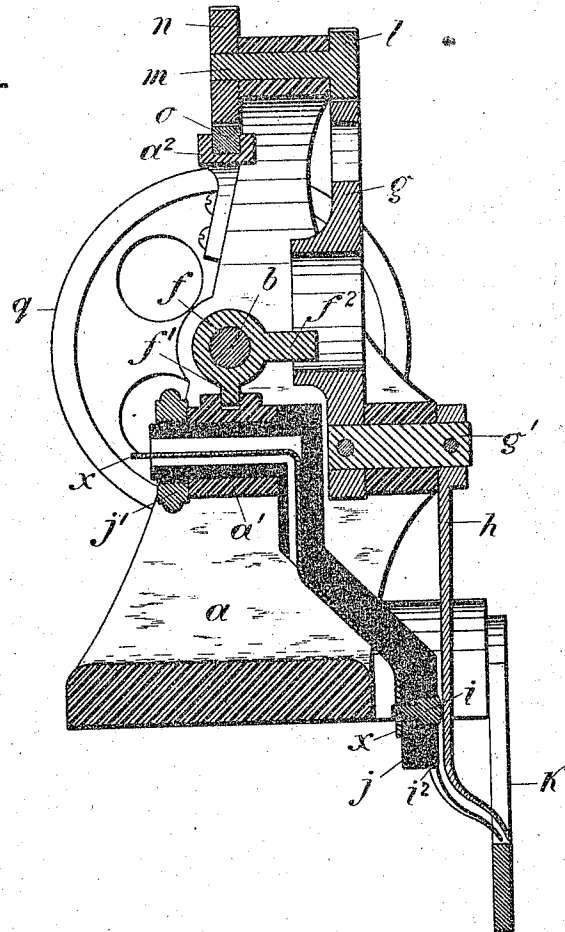
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FIG. 3.



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JOHN T. WHALEN, OF BROOKLYN, NEW YORK.

INDICATING AND RECORDING DEVICE.

940,761.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed June 27, 1907. Serial No. 381,061.

To all whom it may concern:

Be it known that I, JOHN T. WHALEN, a citizen of the United States of America, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Indicating and Recording Devices, of which the following is a specification.

This invention relates to speed indicating, regulating and controlling and recording devices, more particularly to apparatus of this description which is applicable and fitted to vehicles and designed for the purpose of indicating the extent of motion of the same, of controlling and regulating such motion and of furnishing a continuous and permanent record of the progress and operation, or motion, of vehicles so fitted.

The object of my invention is to provide simple and efficient apparatus of this nature which also may advantageously be employed in conjunction with devices disclosed in my application for Letters Patent Serial No. 375,521.

In the accompanying drawings forming part of this specification and in which like characters of reference indicate like parts in all of the views, Figure 1 is a side elevation, partly in section, of my invention. Fig. 2 is a top view of the same, and Fig. 3 is an enlarged, vertical view on line A—A of Fig. 1.

Referring now to the drawings, *a* is a base or frame which supports, suitably journaled, spindle *b* of the centrifugal governor *c* whose yoke *d* is secured to said spindle while yoke *e* may slide longitudinally on spindle *b*, in a manner well understood in the arts. A tubular sleeve *f* is mounted on the revolving spindle *b* in such a manner that only longitudinal motion may be imparted to it by yoke *e*, with which it engages loosely, a pin *f'* engaging with, and sliding in, a slot on one of the standards of frame *a*, thus preventing sleeve *f* from turning. A pin *f''* on sleeve *f* projects horizontally to engage with, and impart oscillatory motion to, gear-lever *g* and switch-lever *h*, both of which levers are secured to, and revolvably supported by, a suitably journaled short shaft, as *g'*. Switch-lever *h* is adapted to contact with connecting bars or pieces *i i' i''* secured to a commutator, as *j*. This commutator *j* is shown to be made of an insulating substance in the form of a segment provided with a horizontally projecting short shaft by means of which, and with the aid of nut

j', it may be adjustably held in suitable supports or journals as *a'*. The centers of the supports for the levers *g* and *h* and commutator *j* are preferably in the same line.

A graduated scale, as *k*, is secured to frame *a* in such a manner that the pointed end of switch-lever *h*, as well as an index finger secured to contact piece *i''*, may always be in close proximity to said scale, whatever their position should be. The periphery of gear-lever *g* has teeth which mesh with the teeth of pinion *l* mounted on shaft *m*, which shaft also carries gear *n*. A rack *o*, slidably mounted in support *a''*, is adapted to receive horizontal reciprocating motion from gear *n*, while a pencil or stylus *p* carried at the end of said rack may bear on a suitable sheet or strip (not shown) placed on, or around, and receiving uniform motion from drum *q*. Drum *q* receives uniform rotary motion always in the same direction from a spring-actuated motor, as a clock or time-train (not shown), or other suitable motor, a clutch *r* serving to disconnect the drum *q* from the motor shaft *s*. An intermediary shaft *t* which receives rotary motion, in either direction, directly or indirectly from one of the axles or equivalent part of a vehicle, turns gear *u* which meshes with pinion *v* on spindle *b* of the centrifugal governor *c*, and thereby causes sleeve *f* to turn gear-lever *g* and switch-lever *h* to an extent varying with the speed of the vehicle, regardless of the direction in which the vehicle is moving. A spring *w* serves to counteract the centrifugal force of the governor balls and to return the same to their position of rest, as is well understood.

Electrical connection with the conducting bars or strips, or contact pieces, *i i' i''* on commutator *j* is preferably effected through the hollow center of the latter by means of wires or similar conductors, as *x*.

The operation of my apparatus is as follows: Assuming the same to be attached to a motor vehicle or automobile, and shaft *t* to receive motion from one of the axles of the vehicle, it is obvious that in consequence of the action of centrifugal force on the balls of the governor *c* any increase in the speed of the vehicle will cause gear-lever *g* and switch-lever *h* to turn in the direction as indicated by arrows. Contact piece *i''* on commutator *j* extends below the latter in the form of an index finger pointing onto graduated-scale *k*. If commutator *j* is then turned

to, and held in, the position shown in Fig. 1, that is, with contact piece *i''* opposite the mark "30" on said scale, these scale graduations indicating the speed in miles per hour, switch-lever *h* will continue to make contact with contact-strip *i*, thereby closing the ignition-circuit of the gas engine, until it comes to rest on contact piece *i''*, when the vehicle will have reached the predetermined and set limit of speed at the rate of 30 miles per hour. Should the speed increase beyond the set limit but a trifle, switch-lever *h* will continue to turn in the direction of the arrow and thereby break contact with contact-strip *i* in consequence of which the explosions in the gas engine cylinder will become impossible and the speed be reduced. The metallic frame *a* of the apparatus and switch-lever *h* form part of an electric circuit, or circuits, comprising a battery or other source of electricity, ignition apparatus and fuel or actuating-fluid controlling devices, substantially as described in my application for Letters Patent Serial No. 375,521, but not shown in the accompanying drawings. Whenever switch-lever *h* rests on contact piece *i''* electric current is sent through the same to a device for throttling the fuel or the fluid actuating the engine, and a similar action for a similar purpose occurs when switch-lever *h* rests on contact piece *i'*.

By the means before described the operator of a motor-vehicle is enabled to automatically prevent his machine from exceeding a pre-determined speed limit, and to vary such limit at will by changing the position of commutator, *j*, that is, within the capacity or power of the motor or engine.

While the operation of the vehicle is thus controlled by switch-lever *h* making and breaking electrical circuits for bringing into action suitable devices and interrupting the action of others, gear-lever *g* through intermediary members, causes pencil *p* to record on a sheet carried by drum *q* by means of a line the variations in the speed as they occur in such a manner that the nearer the line described by the pencil is to a line at right angles to the direction of motion of the drum the more rapid the speed varies, while a uniform motion of the vehicle is indicated by a line parallel to the sides or edges of said drum. As stated before drum *q* is turned by clock-work or other motors, pref-

erably so as to make a complete revolution in twelve or twenty-four hours, such motion, of course, being uniform as well as entirely independent of the necessarily irregular motion of spindle *b* of centrifugal governor *c*.

As commutator *j* and switch-lever *h* may also be utilized for switching into or out of action other circuits than the ones named either in place of, or in addition to, the same, I do not wish to confine myself to the arrangement of circuits herein described, nor to the precise details of construction relating to my indicating, controlling and recording devices.

What I claim as new and desire to secure by Letters Patent is:

1. In combination with a speed recorder a switch comprising a pivotally mounted switch lever actuated by said recorder mechanism, an adjustable commutator insulated from said switch lever, a contact strip on said commutator contacting with said switch lever until a predetermined position of the switch lever has been reached, and another contact strip contacting with said switch lever only when the predetermined position has been reached.

2. In an indicating and regulating device, the combination of a governor, a gear-lever, a stylus, a switch-lever, means for communicating the motion of the governor to the gear-lever and switch-lever, and means for communicating the motion of the gear-lever to the stylus.

3. In an indicating and regulating device, the combination of a governor, a gear-lever, a switch-lever attached thereto, a stylus, means for communicating the motion of the governor to the gear-lever, and means for communicating the motion of the gear-lever to the stylus.

4. In an indicating and regulating device, the combination of a governor, a pivotally mounted gear-lever having a switch-lever attached thereto, a rack, a stylus attached to said rack, gearing intermediate said rack and gear-lever, and means for communicating the motion of said governor to said gear-lever.

Signed at Brooklyn this 25 day of June, 1907.

JOHN T. WHALEN.

Witnesses:

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