

March 26, 1940.

J. W. ROBERTS

2,194,615

TRAVEL DATA INDICATOR

Filed Jan. 12, 1939

2 Sheets-Sheet 1

Fig. 1.

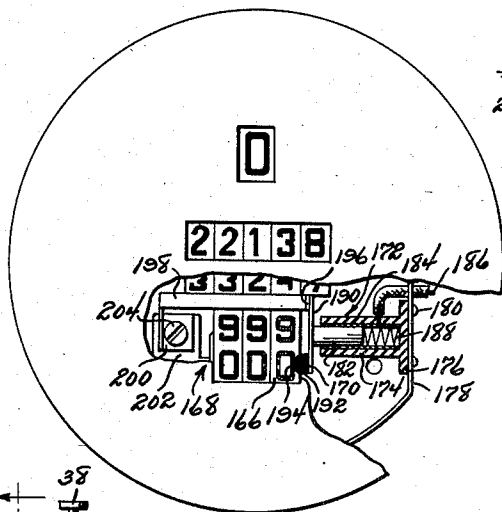


Fig. 2.

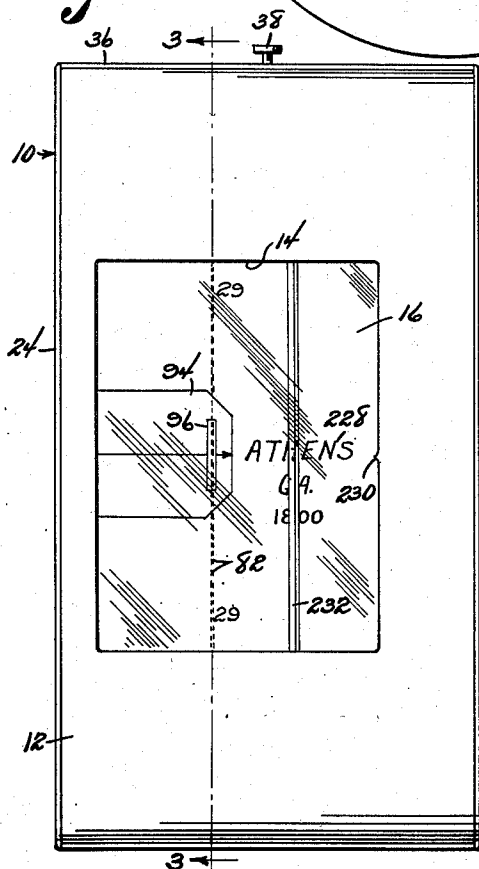


Fig. 6.

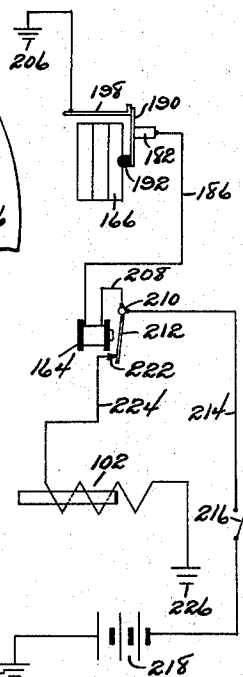
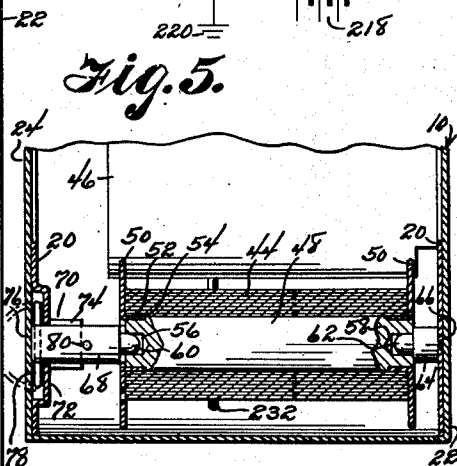


Fig. 5.



John W. Roberts

INVENTOR

By Victor J. Evans & Co.

ATTORNEYS

March 26, 1940.

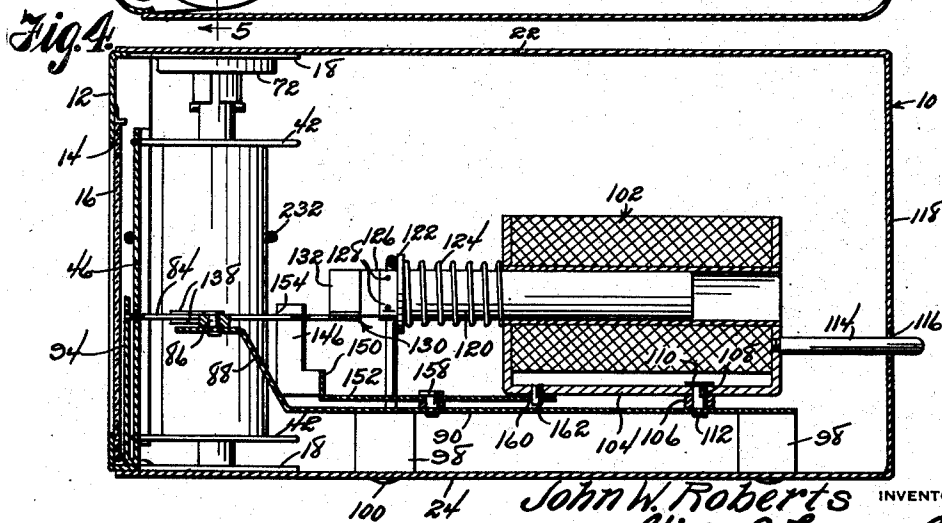
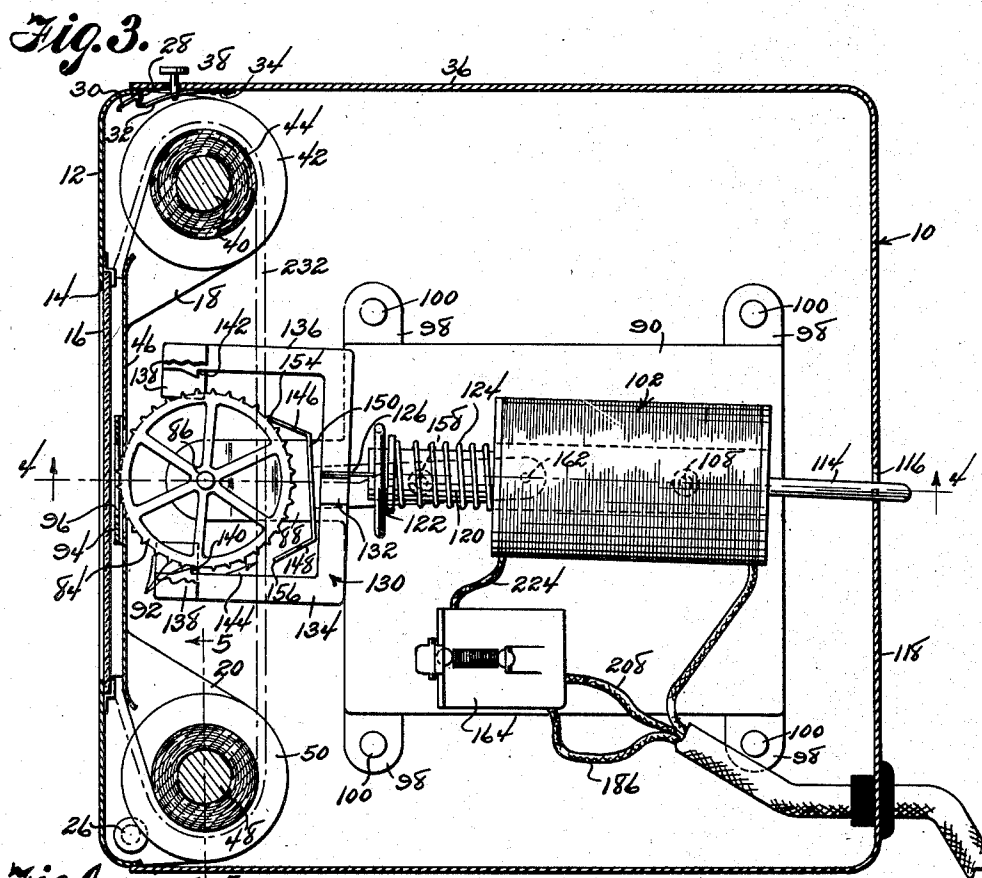
J. W. ROBERTS

2,194,615

TRAVEL DATA INDICATOR

Filed Jan. 12, 1939

2 Sheets-Sheet 2



John W Roberts INVENTOR

BY *Vieta J. Evans & Co.*

ATTORNEYS

UNITED STATES PATENT OFFICE

2,194,615

TRAVEL DATA INDICATOR

John W. Roberts, Bossier, La.

Application January 12, 1939, Serial No. 250,605

5 Claims. (Cl. 40—42)

My invention relates to automotive vehicles, and has among its objects and advantages the provision of an improved travel data indicator.

The invention embodies a web of material such as paper provided with travel data useful to drivers of automobiles and trucks for indicating distances between different cities, route information and general data useful to a person driving through unfamiliar country. The web is associated with a pair of drums and means is provided for advancing the web step by step as successive miles are covered by the driver, so that the information disclosed by the web at any particular time will correspond to the position of the vehicle at that moment. In addition, the web is actuated in such manner and is so exposed as to enable the driver to secure advanced information on roads, cities and the like considerably in advance of reaching any particular point. I also provide novel means for actuating the web together with compensating means to provide for the increased and decreased sizes of the drums.

In the accompanying drawings:

Figure 1 is a diagrammatic plan view of an odometer such as is employed on automobiles, trucks or the like for recording mileage traveled by the vehicle, with certain parts broken away for the purpose of illustrating the application of a periodically operated switch actuated through one of the counting wheels of the odometer;

Figure 2 is a face view of my invention;

Figure 3 is a sectional view along the line 3—3 of Figure 2;

Figure 4 is a sectional view along the line 4—4 of Figure 3;

Figure 5 is a sectional view along the line 5—5 of Figure 3; and

Figure 6 is a diagrammatic view of the electric circuit for periodically operating the indicator.

In the embodiment selected to illustrate my invention, I make use of a box 10 which may be formed of sheet metal and provided with a removable wall 12 provided with a sight opening 14 covered by a glass or other transparent material 16. Cover 12 is flanged at 18 and 20 with the flanges fitting snugly inside the side walls 22 and 24. Flanges 20 are pivotally connected at 26 with the side walls 22 and 24 while the opposite end of the cover is provided with a lip 28 arranged to be pressed into connected relation with a hook 30 formed at one end of a resilient strap 32 fixedly connected at 34 to the wall 36. Hook 30 may be moved out of connected relation with the lip 28 through the medium of a headed pin 38 extending

through an opening in the wall 36 and connected with the strap 32.

Between the flanges 18 I rotatably mount a drum or roller 40 which is flanged at 42 for guiding the convoluted web 44 wound thereon. Web 44 is stretched across a backing plate 46 and its opposite end is wound upon a drum or roller 48 rotatably journaled between the flanges 20. Roller 48 is provided with flanges 50 corresponding to the flanges 42.

Figures 4 and 5 illustrate the manner in which the drums 40 and 48 are rotatably mounted. Attention is directed to Figure 5 which illustrates the mounting of the drum 48. The flanges 50 are centrally flanged at 52 to be pressed onto the reduced ends 54 of the rollers for fixedly connecting the parts. The roller is bored at 56 and 58 for the reception of pins 60 and 62, respectively, which rotatably support the roller. Pin 62 constitutes a reduced extension of a rod 64 having its opposite end riveted at 66 to one of the flanges 20. Similarly, pin 60 constitutes an extension of a shaft 68 rotatably journaled in the sleeve 70 welded to the offset 72 struck from the other flange 20. Sleeve 70 is slotted longitudinally at 74 on diametrically opposite lines and has frictional relation with the shaft 68 to support it in a sturdy manner. The end 76 of the shaft 68 is bored for loose connection with a turning ring 78 which normally lies between the offset 72 and the wall 30 22 of the housing 10.

Cover 12 may be moved to an open position about the axes of the pivotal connections 26. Such opening of the cover will carry the drums 40 and 48 therewith so as to lend access thereto. With the cover opened, ring 78 is accessible for rotating the shaft 68 to bring its transverse pin 80 into registration with the slot 74, at which time the shaft may be shifted longitudinally sufficiently far to bring the pin 60 clear of the drum 48 to permit disconnection of the drum from the pins 60 and 62. Thus the hinged cover provides an advantageous mount for the drums in addition to constituting a carrier through the medium of which the drums may be shifted as a unit to positions exteriorly of the housing 10. Thus I provide means which facilitates loading of the web 44 as well as manual adjustment thereof whenever occasion requires a manual adjustment. Since the drum 40 is detachably related to the flanges 18 in the same manner as set forth in connection with drum 48, as illustrated in Figure 5, it is thought that the description of one is entirely sufficient.

Web 44 is provided with perforations 82 which

are arranged in a straight line longitudinally of the web for cooperation with a sprocket wheel 84 rotatably mounted on a shaft 86 supported on a bracket 88 constituting a strap-like extension of a bed plate 90. The teeth 92 of the sprocket wheel 84 extend through the perforations in the web 44 for moving the web across the sight opening 14. Cover 12 is provided with a plate 94 under which the web 44 passes, which plate is slotted at 96 to provide accommodation for the teeth 92. Slot 96 is substantially of the same width as the teeth 92 so as to provide an effective backing for the web to insure effective driving relation between the web and the sprocket wheel.

Bed plate 90 is provided with legs 98 secured to the wall 24 by rivets 100. Upon the bed plate 90 I mount a solenoid 102 through the medium of a bracket 104. Between the bracket 104 and the bed plate 90 I position a sleeve spacer 106 through which the pivot pin 108 extends. Pin 108 includes a head 110 for drawing the bracket against one end of the sleeve 106 and the opposite end of the pin is riveted at 112 to the bed plate 90. However, the bracket 104 may be rotated on the pin 108 through the medium of a handle 114 which extends through a slot 116 in the wall 118 of the housing 10.

Solenoid 102 includes an armature 120 provided with a collar 122 between which and one end of the solenoid I position a compression spring 124 which normally urges the armature to the positions of Figures 3 and 4. The outer end of the armature 120 is slotted for the reception of one end of a short, flexible strap 126. The strap is fixedly related to the armature by rivets 128. To the outer end of the strap 126 I secure a frame 130 through the medium of an angle 132 which may be welded to the strap and the frame. Frame 130 includes arms 134 and 136 to the outer end of which I secure spaced plates 138 between which the peripheral margin of the sprocket wheel 84 is positioned to utilize the sprocket wheel as a guide element for the frame. Arm 134 includes a dog 140 while the arm 136 is provided with a similar dog 142.

Figure 3 illustrates the arm 134 being positioned with its dog 140 located between two of the teeth 92 so as to impart rotation to the sprocket wheel 84 in the direction of the arrow 144 when the armature 120 is pulled into the solenoid. Dog 142 is located entirely clear of the teeth 92. The relation between the dogs 140 and 142 is selectively controlled through the medium of the handle 114. Figure 3 illustrates the handle as lying in one end of the slot 116, at which time the dog 140 is arranged in operative relation with the wheel 84. Shifting of the handle 114 to the opposite end of the slot moves the dog 140 clear of the wheel but brings the dog 142 into operative relation with the teeth 92.

Means are provided for latching the wheel 84 against accidental rotation during actuation thereof through the medium of either of the dogs 140 or 142. Such latch means is particularly desirable during the return thrust of the arm carrying the actuating dog so as not to shift the web 44 in a backward direction. Figure 3 illustrates two diverging arms 146 and 148 interconnected through the medium of a strap 150 carried by a strap 152. Edge 154 is located in holding relation with one of the teeth 92 when the dog 140 is operatively related to the sprocket wheel 84, see Figure 3. When the dog 142 is shifted into operating relation with the wheel 84, the arms 146 and 148 are simultaneously shifted for bring-

ing the edge 156 into operating relation with the wheel. It will thus be seen that with the parts adjusted according to Figure 3, edge 154 restrains the wheel from counter rotation as the dog 140 is moved back to the normal position illustrated. Similarly, the edge 156 will restrain counter rotation of the wheel as the dog 142 is thrust back to its normal position.

Means for shifting the arms 146 and 148 simultaneously with adjustment of the frame 130 resides in the strap 152 which is pivotally connected at 158 with the bed plate 90 substantially intermediate its ends. The end of the strap is slotted at 160 for loosely receiving a pin 162 carried by the bracket 104 for pivoting the strap through 15 pivotal movement of the bracket 104.

Upon the bed plate 90 I mount a relay 164 which is electrically connected with the solenoid 102 and is controlled through the medium of a switch actuated through the medium of one of the counter wheels of the odometer. Figure 1 illustrates the units wheel 166 of the odometer 168 as being provided with a notch 170. Units wheel 166 makes a complete revolution for each mile traveled by the vehicle, and the wheel is provided with one notch 170 only for actuating the switch 172 momentarily once for each mile covered by the vehicle.

Switch 172 comprises an insulated tube 174 provided with a flange 176 secured to the casing wall 178 by screws 180. A shaft 182 is slidable inside the metallic liner 184 pressed into the insulated tube 174. A wire 186 is electrically connected with the sleeve 184 and the shaft 182 is arranged in conducting relation with the sleeve. Between the inner end of the shaft 182 and the flange 176 I interpose a compression spring 188, and to the outer end of the shaft I connect a bar 190 which carries an insulated lug 192 at one end arranged to fall into the recess 170 when the two are aligned. Lug 192 is curved at 194 so as to be easily cammed out of the recess for moving the bar 190 out of spaced relation with the end 196 of a conducting bar 198 having an ear 200 fixedly secured to the frame 202 of the odometer through the medium of a screw 204. Ear 200 is grounded at 206. Bar 190 has conducting relation with the conducting bar 198 only when the lug 192 lies in the recess 170. Such conductive relation is established momentarily once for each mile traveled by the vehicle.

Figure 6 illustrates the electric circuit. Wire 186 leads to the relay 164 and the relay is connected with a wire 208 connected with a terminal 210 electrically connected with a switch arm 212. A wire 214 leads to the ignition switch 216 and is connected with the battery 218 which is grounded at 220. Switch arm 212 is arranged to engage a contact 222 connected with a wire 224 leading to the solenoid 102 grounded at 226.

In operation, relay 164 is energized at the moment the lug 192 drops into the recess 170. The energized relay attracts the switch arm 212 to the position of Figure 6 for closing the circuit through the solenoid 102. Relay 164 draws little current so as to eliminate objectionable arcing in connection with the switch 172.

Energization of the solenoid 102 draws the armature 120 inwardly for actuating the wheel 84 for shifting the web 44. Thus the web 44 is shifted in successive steps distances representing corresponding miles traveled by the vehicle. Web 44 may be provided with any type of desirable travel information as indicated generally at 228 in Figure 2. The information may comprise high-

way routes and identification therefor, distances between towns and cities as well as information on hotel accommodations, etc. Distances traveled by the vehicle in terms of web shifting may be read in connection with the pointer 230 associated with the sight opening 14.

Drums 40 and 48 are rotated simultaneously through the medium of the wheel 34. An endless belt encircles the two drums for supporting the same against accidental relative movement in addition to supporting the convoluted web in tightly wound relation with the drums. In Figures 3 and 4, I illustrate the endless belt 232 as comprising a rubber band. The rubber band is tensioned about the wound web on the two drums and one run of the web passes across the face of the web lying on the backing plate 46. Since the band is under tension, rotation of one drum for unwinding web therefrom imparts rotation to the other drum for web take-up purposes. Thus the run of the web extending across the backing plate 46 will be maintained taut and the take-up drum is operated efficiently for taking up slack in the web. The resilient nature of the band is such as to compensate variable diameters of the two drums during winding and unwinding of the web.

Housing 10 comprises a small unit in which the wiring leading to the housing is of such length as to accommodate placement of the housing in different positions. The unit may be placed on one of the seats or laid on the floor.

Without further elaboration, the foregoing will so fully illustrate my invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. A travel data indicator for automotive vehicles provided with an odometer mechanism comprising a housing having a sight opening, drums rotatably mounted in the housing, a web provided with travel data wound on said drums having a run extending across said sight opening, electrically actuated means inside said housing operatively connected with the web for moving the same distances representing distances traveled by the vehicle, a switch operatively connected with said odometer mechanism to be opened and closed at predetermined intervals, an electrical connection between said switch and the electrically operated means, said web being provided with perforations, said electrically actuated means including a toothed element cooperating with the perforations in the web for moving the same, and a reciprocated ratchet mechanism for rotating the toothed element when said switch is closed.

2. A travel data indicator for automotive vehicles provided with an odometer mechanism comprising a housing having a sight opening, drums rotatably mounted in the housing, a web provided with travel data wound on said drums having a run extending across said sight opening, electrically actuated means inside said housing operatively connected with the web for moving the same distances representing distances traveled by the vehicle, a switch operatively connected with said odometer mechanism to be opened and closed at predetermined intervals, an electrical connection between said switch and

the electrically operated means, said web being provided with perforations, said electrically actuated means including a toothed element cooperating with the perforations in the web for moving the same, and a reciprocated ratchet mechanism for rotating the toothed element when said switch is closed, said ratchet mechanism being adjustable to different positions for rotating the toothed element in opposite directions.

3. A travel data indicator for automotive vehicles provided with an odometer mechanism comprising a housing having a sight opening, drums rotatably mounted in the housing, a web provided with travel data wound on said drums having a run extending across said sight opening, electrically actuated means inside said housing operatively connected with the web for moving the same distances representing distances traveled by the vehicle, a switch operatively connected with said odometer mechanism to be opened and closed at predetermined intervals, an electrical connection between said switch and the electrically operated means, an endless drive element encircling the drums and the web wound thereon for rotating the drums in unison, said web being provided with perforations, said electrically actuated means including a toothed element cooperating with the perforations in the web for moving the same, and a reciprocated ratchet mechanism for rotating the toothed element when said switch is closed.

4. A travel data indicator for automotive vehicles provided with an odometer mechanism comprising a housing having a sight opening, drums rotatably mounted in the housing, a web provided with travel data wound on said drums having a run extending across said sight opening, electrically actuated means inside said housing operatively connected with the web for moving the same distances representing distances traveled by the vehicle, a switch operatively connected with said odometer mechanism to be opened and closed at predetermined intervals, an electrical connection between said switch and the electrically operated means, said housing being provided with a door, and a backing plate carried by the door underlying the run of the web between the two drums, said drums being mounted on said door and movable therewith as a unit.

5. A travel data indicator for automotive vehicles provided with an odometer mechanism comprising a housing having a sight opening, drums rotatably mounted in the housing, a web provided with travel data wound on said drums having a run extending across said sight opening, electrically actuated means inside said housing operatively connected with the web for moving the same distances representing distances traveled by the vehicle, a switch operatively connected with said odometer mechanism to be opened and closed at predetermined intervals, and an electrical connection between said switch and the electrically operated means, said electrically actuated means including a solenoid actuated ratchet mechanism for driving the web, said solenoid actuated ratchet mechanism being adjustable to different positions for moving the web in different directions.

JOHN W. ROBERTS.