Aug. 8, 1967 R. TURGEON 3,334,484

DRIVING TEST

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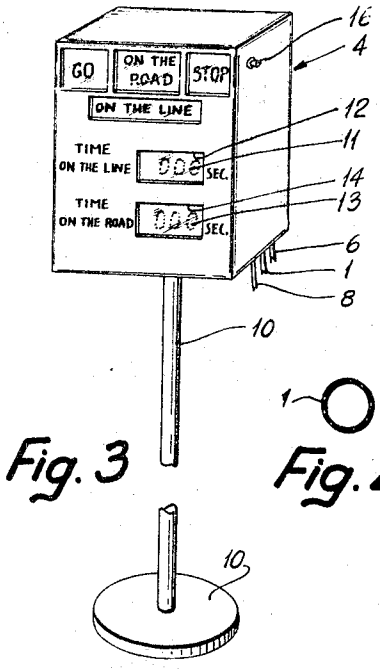


Fig. 3

Fig. 2

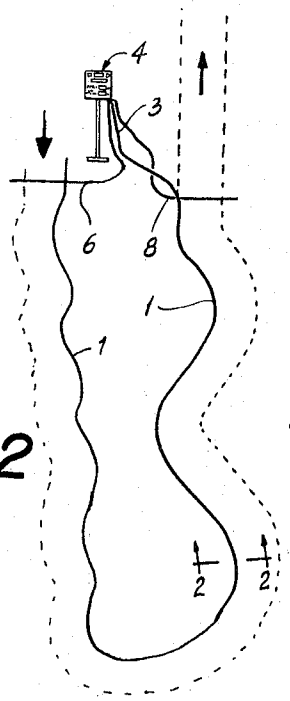


Fig. 1

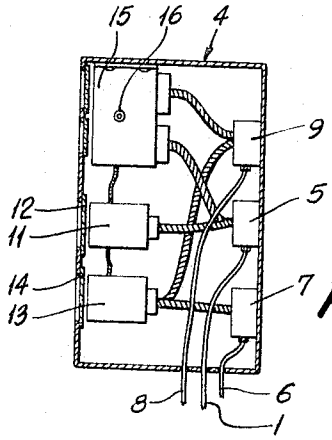


Fig. 4

INVENTOR
Roger TURGEON
Pierre Lespérance
AGENT

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DRIVING TEST

Roger Turgeon, 8190 Viau St., St. Leonard de Port Maurice, Quebec, Canada

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ABSTRACT OF THE DISCLOSURE

The present invention is characterized by the combination of a flexible, elastic tube laid out on a driving test course, having a start line and a finish line, a fluid pressure-responsive electric switch connected to and closing one end of said first tube, whereby the passage of a motor vehicle wheel along said tube will cause flattening of the tube and increase of the fluid pressure therein forwardly of the wheel, to thereby actuate the switch, the wheel upon clearing the tube allowing the tube to take an unflattened condition, whereby the fluid pressure returns to a normal value and de-actuates the switch, a first time recorder connected to the electric switch and actuated thereby to give a recording of the total time during which at least one of the vehicle wheels passes on the tube, means at the start and finish lines responsive to the passage of the motor vehicle and a second time recorder connected to said last-named means and actuated thereby to record the time elapsed between the passages of a motor vehicle at said start and finish lines, whereby the result of the test is indicated as a ratio of the time the main tube is actually flattened by the vehicle wheel over the time which the vehicle has taken to go from the start to the finish line.

The present invention relates to automobiles and, more particularly, to an automobile driving test.

The general object of the present invention relates to means for evaluating the ability of a driver of a motor vehicle having to follow a predetermined course incorporating curves and turns, said test also capable of evaluating the rapidity of reflex of the driver.

Another important object of the present invention resides in the provision of a driving test of the character described, by which various drivers may be compared as to their driving ability.

Another important object of the present invention resides in the provision of a test of the character described, which can be used as a competitive driving sport between various drivers as well as a scientific measure of their driving ability.

Another object of the invention resides in the provision of a device of the character described, of relatively simple and inexpensive construction.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings, in which:

FIGURE 1 is a schematic plan view of flexible elastic tubes laid on the ground and forming one part of the device and an elevation of the indicating box forming the remaining part of the device;

FIGURE 2 is a cross-section of a tube, taken along line 2—2 of FIGURE 1;

FIGURE 3 is a perspective view of the indicating box; and

FIGURE 4 is a longitudinal section of the indicating box.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, the system in accordance with the invention comprises a timing device and a flexible elastic tube containing a fluid and connected to the timing device for actuating the same.

The tube is laid on the ground in any desired zig-zag configuration, preferably with curves and turns, and the driver of the motor vehicle has to steer the vehicle with at least one wheel running along the tube so as to flatten the same, to thereby cause an increase of the fluid pressure within the tube and actuation of the timing device.

The timer indicates the time the motor vehicle wheel, or wheels, is flattening the tube. Another timing device with actuating means associated therewith serves to count the time elapsed between a starting line and a finish line, and the result of the test is indicated as the ratio of the time the main tube is actually flattened by the vehicle wheel over the time which the vehicle has taken to go from the starting to the finish line.

FIGURE 1 shows at 1 a flexible elastic tube laid on the ground in accordance with any desired predetermined path, so as to form, for instance, an irregular zigzag. Tube 1 is preferably made of rubber or other flexible and elastic material, so that it can be flattened by the wheel of a motor vehicle, but immediately returns to its original tubular shape upon the vehicle wheel clearing the tube.

The end of the tube is open to the atmosphere so that the tube normally contains air at atmospheric pressure.

The end 3 of the tube enters an indicating box 4, wherein it is connected to and closed by an air pressure operated electric switch 5, for instance a diaphragm switch. The starting line for the test is determined by a second flexible and elastic tube 6, called the start tube, which is laid out with its outer end portion at substantially right angles to the end 2 of tube 1 so as to run across the path of a motor vehicle at the start line.

Tube 6 is also running to the box 4 out of the driving path of the motor vehicle and is in communication with an air-pressure operated electric switch 7, namely: a start switch. Similarly, a third flexible and elastic tube 8 is laid across a portion of tube 1 near indicator box 4. Tube 8 defines the finish line of the driving course and is connected in box 4 to an air pressure actuated electric switch, denoted finish switch 9. Box 4 is preferably mounted on a pedestal 10 and its front face facing the driver conducting his vehicle on the testing course, is provided with the following indication and instruments: a first time recorder 11, of conventional construction and shown as a box in FIGURE 4, has several dial wheels numbered in seconds: 10 seconds, 100 seconds, appearing through window 12 of the face of the box 4; the indication "time on the line" appears beside the window 12. A second similar time recorder 13 has its dial wheels similarly numbered in seconds, appearing through a window 14, and the face of the box 4 bears the indication: "time on the road" besides window 14.

Box 4 further carries at its front and back faces several windows closed by translucent or transparent panes marked with the following indications: "go," "on the road," "stop," "on the line." Each window can be illuminated by suitable electric lights, each associated with one indication above noted, so as to illuminate the respective indications, said lights being located inside box 15 itself disposed in box 4.

The time recorders 11 and 13 are operated by electric motors of the synchronous type. Tubes 6 and 8 are closed at their outer ends to actuate switches 7 and 9 when said tubes are flattened. Tube 1 is open at its outer end and, upon passage of one or more wheels of a motor vehicle, there is an increase of air pressure within the tube to actuate the air switch 5, which is provided with an air safety valve for relieving excess air pressure built up by a vehicle wheel moving longitudinally on tube 1.

Air switch 5, which is operated by an increase of pres-

sure in the main tube 1, is electrically connected to the circuit of the time recorder 11 to cause operation of said time recorder whenever a motor vehicle wheel moves longitudinally on tube 1.

Operation of the on-the-line switch 5 also closes the circuit to the electric light for illuminating the indication "on the line," thereby giving an indication to the spectators that the wheels of the vehicle are actually moving on tube 1. Thus, switch 5 is a double switch. The above indication may be furnished to the driver by buzzers or other sound signals disposed along the test course and connected to the "on the line" circuit.

The start tube 6, which operates start switch 7, causes an increase of the air pressure in tube 6 upon passage of the front wheel of the motor vehicle at the start line of the driving course, closing the start switch 7, which closes the electric circuit containing the second time recorder 13 to thereby start operation of the same. Start switch 7 also closes the circuit of the light behind the indication "on the road," giving an indication to the driver that the test has commenced. Switch 7 also cuts off the circuit to the light indicating "go." Thus, switch 7 is actually a triple switch.

Upon finishing the test, the motor vehicle wheels flatten the finish tube 8 which causes by an increase of its air pressure closure of the finish switch 9. The latter is electrically connected to the time recorder 13 so as to cut off the circuit of the latter and also to close the circuit of the electric light behind the stop indication so as to light said indication, in order to notify the driver that his test run is now completed. Thus, switch 9 is a double switch.

Upon depression of a reset button 16 mounted on box 4, the resetting of the various instruments in the indicating box 4 is accomplished as follows: the two time recorders 11 and 13 are returned to zero reading; the indication "stop" is turned off while the indication "go" is turned on. The indication "go" is turned off upon the following operation of the start switch 7 which opens the circuit of the light behind the indication "go."

In résumé, the device is used as follows:

Upon the driver seeing the "go" light on, he starts the motor vehicle and approaches the start line indicated by the end of start tube 6, crosses the start line while trying to steer the vehicle with the right or left wheels along tube 1.

As soon as he depresses the start tube 6, the counter 13 starts to operate to measure the time elapsed between the start and finish line. As long as the driver keeps at least one wheel on tube 1, the first time recorder 11 operates, giving an indication of the actual time the wheels are flattening the tube 1. When the vehicle is on the testing course, the light "go" is off and the light "on the road" is on. When the vehicle is on tube 1, the indication "on the line" is on; when the vehicle crosses the finish line, time recorder 13 stops and also, naturally, time recorder 11. The indications "on the road"—"on the line" are off, together with the indication "go" and the indication "stop" is on.

The fraction or ratio obtained from a reading of the time recorders "time on the line" and "time on the road" is an indication of the ability of the driver to steer on tube 1. It gives the percentage of the actual time on the tube 1, as compared to the time elapsed for the driver's test.

Furthermore, this ratio is given more weight as the denominator is smaller; that is, the record of the time on the road is an indication of the speed with which the driver has accomplished the test and, therefore, a comparison of said speed with the above-indicated ratio gives an indication of the rapidity of reflex of the driver. The driver's rating is thus given by the above ratio divided by the "time on the road."

After one test is finished, the button 16 is depressed so as to reset the indicator box; the light "stop" goes off; the light "go" goes on and the counters or time recorders move back to zero reading. The light "go" being on, gives an indication to the next driver that the testing course is ready for use.

Tube 1 may be laid out in accordance with any desired path including an open figure, if so desired. Also, two tubes 1 may be laid out side by side at a spacing slightly greater than the distance between the wheels of a motor vehicle so that the wheels of the motor vehicle must clear the two tubes. Thus, operation of time recorder will count points against the driver.

For a very long testing course, several tubes 1 may be laid out end to end, each provided at their back end with an air switch electrically-connected to the central box 4.

Tubes 1, 6, and 8 could also be filled with a hydraulic fluid, if so desired, so as to operate switches responsive to hydraulic fluid pressure. The electrical circuit within box 4 has not been shown, because the same is conventional.

The stop tube 6 and finish tube 8 and related air pressure switches could be replaced, if desired, by a photocell electric system, or other means, to indicate the passage of the vehicle at the start and finish lines and start and stop time recorder 13.

While a preferred embodiment in accordance with the invention has been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

What I claim is:

1. A system for measuring the driving ability of a motor vehicle driver comprising, in combination, a flexible elastic tube containing a fluid and laid out on a driving test course along an irregular path, a fluid pressure responsive electric switch connected to and closing one end of said tube, whereby the passage of a motor vehicle wheel along said tube will cause flattening of said tube and increase of the fluid pressure therein forwardly of the wheel, said pressure increase actuating said switch, said wheel, upon clearing said tube, allowing said tube to take an unflattened condition and said fluid pressure to return to a normal value, to thereby de-actuate said switch, a first time recorder connected to said electric switch and actuated thereby to give a recording of the total time during which at least one of the vehicle wheels passes on the tube, said driving test course having a start line and a finish line, means at said start and finish lines responsive to the passage of a motor vehicle, and a second time recorder connected to said last-named means and actuated thereby to record the time elapsed between the passages of a motor vehicle at said start and finish lines.

2. A system as claimed in claim 1, wherein said means consist of flexible elastic tubes laid across said first-named tube near the ends of the latter and containing a fluid, an air pressure electric valve closing one end of each of said tube and an electric time recorder having an electric circuit closed by operation of the air switch associated with the tube at the start line and stopped by the switch associated with the tube at the finish line, so as to record the time elapsed during travel from the start line to the finish line.

3. A system as claimed in claim 2, further including a box mounted on a pedestal and carrying said pressure switches and time recorders.

4. A system as claimed in claim 1, further including an air pressure relief valve connected to said tube adjacent said switch.

References Cited

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RICHARD B. WILKINSON, *Primary Examiner.*

M. L. LORCH, *Assistant Examiner.*