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ELECTRIC SPEEDOMETER CO.
Evans Building
WASHINGTON, D. C.

H. CUNTZ

Mad 50 1911

**HOPKINS
ELECTRIC
SPEEDOMETER**



**THE
ELECTRODOMETER**
TRADE-MARK



**No Flexible Shaft
Used**



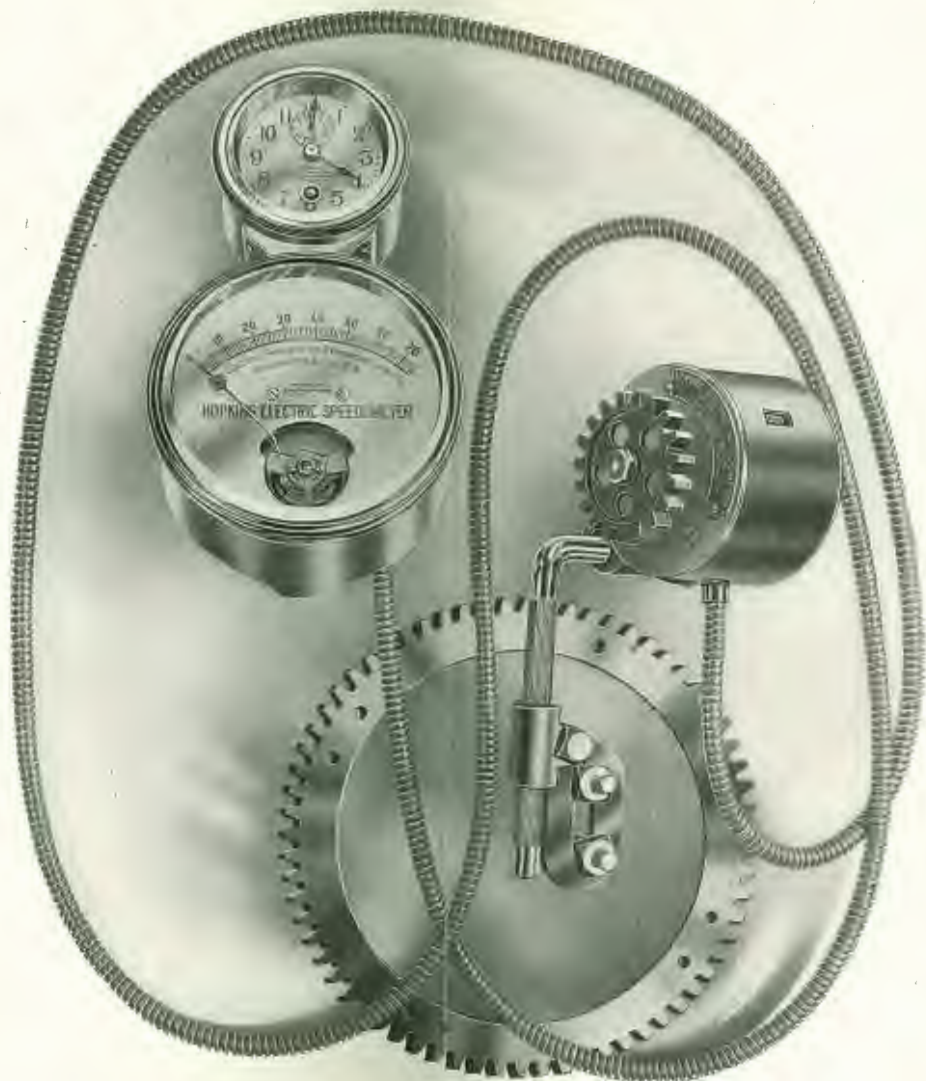


FIGURE ONE

Hopkins Electric Speedometer

MODEL E

Rubber-Covered Cable, protected by Brass Armor Duct. No flexible or mechanical shaft used.

Hopkins
Electric Speedometer
————— 1911 —————

The
Ultimate
Speedometer



ELECTRIC SPEEDOMETER CO.

Evans Building, 1420 New York Avenue

WASHINGTON, D. C., U. S. A.

New York Branch - - 1999 Broadway

Hopkins Electric Speedometer

CLAIMS

HOPKINS ELECTRIC SPEEDOMETER

It has **greatest possible precision**
No flexible shaft to break—rust out or make a humming sound

Shows **stadiest reading** of all speedometers under the most **severe road conditions**

Absolutely noiseless

Readings **unaffected** by **extreme changes** in **temperature**

Has **lightest possible moving system** turning in **sapphire bearings**

Operates **independently** of **odometer** mechanism

Season odometer is placed at wheel where **reliable service** is **guaranteed**

Is of **highest grade materials and workmanship** obtainable

Rugged—strong—beautiful

Uniform price for any speed dial desired

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Hopkins Electric Speedometer

CLAIMS

THE ELECTRODOMETER

TRADE MARK

The new **perfected 1000-mile Trip Odometer**

The only one **operated without the trouble-breeding flexible shaft**

As **portable** as a **watch**

Operates and registers without **interruption** when carried in the **hand** and moved from one to another **part** of the **car—to dash—to front seat or to tonneau**

Can at **any time** be **reset to any reading** from **one-tenth** of a mile to **999.9 miles**

Registers each **tenth** of a mile **accurately** and in **plain, easily-read figures**

Figures come into **view instantly** and are **always fully exposed**

If **desired—two or more Electro-dometers** can be **installed** on a car as **readily as one**

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its life has been fully shown. The particular instrument of this enduring type furnished in the Hopkins system is of the highest grade obtainable. There can be no perceptible wear in its use, and it can be rendered inoperative only by misuse or violence. There are but two bearings in this instrument, made of the very best quality of sapphire. The pivots of the coil are of the best hardened steel, and are ground and shaped under a microscope.

This instrument is particularly constructed to withstand the severe vibration and jar of automobile service. It cannot get out of order. There is no mechanical wear on it; there are no joints nor parts to wear and cause lost motion; the accuracy of the system is unaffected by changes in temperature, and furthermore by using the permanent magnet type of meter the speedometer gives absolutely steady readings at all speeds. Even the jar or bump of a car going over rough cobblestones or rough roads does not make the needle of the instrument fluctuate.

MAGNETO

The magneto (figure three) is of the direct current type. It consists of a three coil armature rotating between the poles of a permanent horse shoe magnet. The current generated in the armature is sent to the line through a commutator of three parts; the rotating strips being of pure **platinum** and the brushes or connecting contacts of **twenty karat gold**.

The magneto is gear-driven by steel gears external to the magneto case. Within the case there is a reduction in speed of about $2\frac{1}{4}$ to 1

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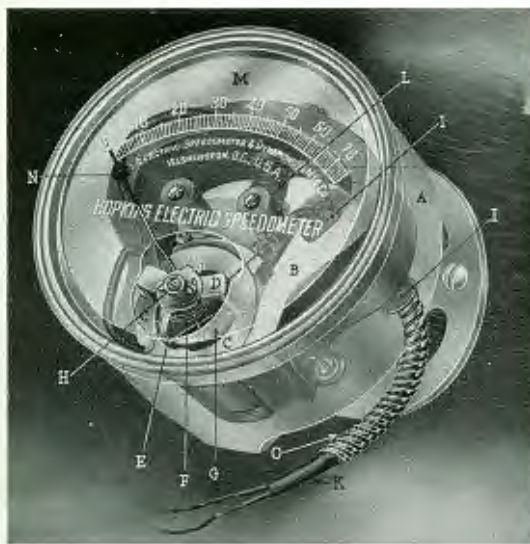


FIGURE TWO

Construction of Instrument

The system is composed of the massive permanent tungsten steel magnet “B” carrying the pole pieces “C,” between which the moving element “F” turns, mounted in the sapphire bearings “H.”

This moving element is the lightest indicating part of any speedometer made, being no more than an aluminum frame pivoted and carrying a light aluminum pointer or indicating hand “N.” The scale plate, shown in the illustration as transparent, is a silvered etched dial having uniform graduations throughout its entire length, being graduated in one mile divisions from 0 to 75 miles.

The small spool “L” contains a very fine resistance wire and is the means of securing an utmost refinement and permeability of calibration.

A separable “novice” connection-box, shown at “I,” which screws into the back of the instrument, enables a user, without knowledge of electrical connections, to install the instrument without difficulty.

The wires “K” which lead from the magneto generator on the front wheel of the car are enclosed in a waterproof flexible brass armor “O.”

The entire instrument mechanism is enclosed in a beautiful polished brass waterproof case, “A,” having a full, heavy beveled glass front. The instrument is attached to the dash by strong screws or bolts, and adjusted at any convenient angle by means of the adjustable bracket.

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between the magneto shaft proper and the armature shaft. These internal gears are made of brass and great care is taken in cutting the teeth in order to get a perfect running train.

The general principle underlying the HOPKINS ELECTRIC SPEEDOMETER is a very old one, but one that has never been successfully applied to this purpose until the epoch-making improvements of design incorporated in the HOPKINS ELECTRIC SPEEDOMETER were invented. By the use of platinum and gold at the commutator of this magneto, any possibility of change in calibration has been entirely eliminated and the guarantees of calibration are absolutely reliable and correct.

SEASON ODOMETER

The season odometer incorporated in the magnet is of the well-known Veeder make, which has been the standard of odometer construction for so many years. By installing this odometer within the magneto case and by driving it direct through spur gearing from the automobile wheel it has been possible to obtain at last a definite and reliable record. **There is no dependence placed on unreliable flexible shafting for keeping a continuous record of car mileage.**

The season odometer furnished in the HOPKINS ELECTRIC SPEEDOMETER records up to 10,000 miles and then repeats.



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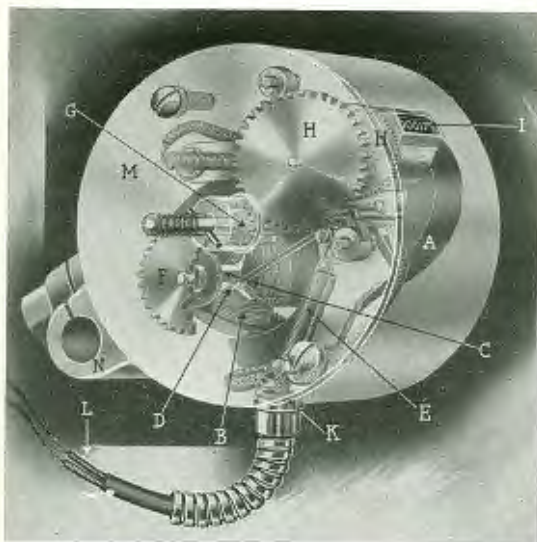


FIGURE THREE

Construction of Magneto

At first glance the mechanism shown appears to be somewhat complicated, but upon closer inspection it will be found that it consists of the simplest possible construction. Here again is a massive tungsten steel magnet "A" between the poles of which rotates the small armature "B," the commutator of which is composed of three platinum strips "C," and the brush gear which consists of four small gold brushes "D" acting upon the barrel of the commutator and held in position by the long flexible bronze springs "E."

The driving of the armature at a reduced speed is accomplished by means of the pinion gear "G" on the main shaft and the armature gear "F." The gears "HH" are the odometer train necessary for accurate registration of the Veeder Season Odometer "I." This Odometer is so geared as to give readings within 1% of actual road mileage.

The wires "L" are led out through the flexible brass armor "K" and thence to the instrument head shown in Figure Two.

The entire generating mechanism is enclosed in water-tight brass case "M" having a cast clamp "N" for mounting on magneto support.

Machines of this type have given both laboratory and road service tests of 100,000 miles without showing any appreciable wear.

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THE ELECTRODOMETER

TRADE MARK

This new perfected 1000-mile trip odometer (figure four) consists of an electrical magnet-operated counter, a contact device (make and break), and flexible electric cable to facilitate the use of THE ELECTRODOMETER at any point in the car. All principles incorporated in its design have been in past years most thoroughly demonstrated as reliable and practical.

At every tenth of a mile the contactor which is located in the magneto of the HOPKINS ELECTRIC SPEEDOMETER is closed, allowing current to flow from the ignition storage battery, or dry cells as the case may be, through a small electro-magnet (solenoid) within THE ELECTRODOMETER case. When this solenoid is magnetized it draws to it an armature, thereby rotating the number disks shown in **Figure Four**. Each one-tenth mile reading occurs instantly at each contact.

The contact device within the magneto is so arranged that the duration of contact is almost instantaneous—thereby using only a very minute part of the available current in an ignition battery.

It is also arranged so that it is absolutely impossible to leave the contact closed (short-circuiting the battery) when the car is standing, and furthermore, running the car backward does not in the least injure the contactor.

THE ELECTRODOMETER is fitted with resetting stems so that at any time any reading from

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one-tenth mile to 999.9 miles can be easily and readily obtained. It can of course be reset to zero at will.



FIGURE FOUR

THE ELECTRODOMETER is used only when wanted as it is capable of easy disconnection. When not operated it consumes no current.

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FIGURE FIVE

Model D - \$75

Four and one-half inch
75-Mile Speed Scale
10,000-Mile Season Odometer
Fittings complete for any make of car
Electric Light Attachment, complete, \$2

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FIGURE SIX

Model E - \$100

Same as Model D, but with $2\frac{3}{4}$ -inch
Eight-Day Clock Attachment
Jewelled Movement Automobile Clock
Electric Light Attachment, complete, \$2

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FIGURE SEVEN

Model F - \$110

Four and one-half inch Speedometer
75-mile Speed Scale
10,000-Mile Season Odometer
1,000-mile ELECTRODOMETER in case
Fittings complete for any make of car
Electric Light Attachment, complete, \$2

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FIGURE EIGHT

Model G - \$135

Same as Model F, but with 2¾-inch
Eight-Day Clock Attachment
Jewelled Movement Automobile Clock
Electric Light Attachment, complete, \$2

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DIRECTIONS FOR INSTALLING

HOPKINS ELECTRIC SPEEDOMETER

The wheel gear furnished must be accurately centered on left front wheel of automobile, using the screws and bushings supplied.

The magneto with the universal support is to be installed on steering knuckle so that magneto gear will mesh properly (1-16 inch clearance between top and bottom of gear teeth) with wheel gear when magneto is securely clamped.

The indicating instrument is to be mounted on dash or in other suitable location, and secured by the screws or bolts furnished. The free end of the armored cable is to be carried under the chassis and brought to the instrument through the dash or floor board. Insert the plug in the back of instrument and tighten ferrule securely with pliers.

Set instrument by means of adjustable bracket at any angle desired.

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DIRECTIONS FOR INSTALLING

THE ELECTRODOMETER

TRADE MARK

Install the terminal box on the lower side of the car body midway of frame and opposite battery box. Carry the battery wires through the mud-guard and battery box, and fasten the terminal lugs securely to the battery posts. Fasten the brass armored cable securely to the chassis at a number of points with straps or metal strips.

Install the leather case containing THE ELECTRODOMETER at any point in the car desired, such as robe-rail or dash, by means of the leather straps. Carry the twisted leads through a small hole at any convenient point in the floor of the car and attach the terminals to the binding posts on the terminal box, tightening the nuts with pliers.

It is not necessary to determine the polarity of the battery when making connections.

To set THE ELECTRODOMETER to any desired reading, open the door at its back and turn each stem until the number wanted comes into view.

Read carefully the above directions and the instruction tags attached to the instruments, before attempting to install the equipment.

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DASH BRACKETS

Instrument head is furnished with an adjustable bracket that will meet usual conditions.

In some cases *Special* instrument brackets will be required because of special dash design. State your requirements and all necessary fittings will be supplied.



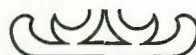
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MAGNETO SUPPORTS

A universal supporting clamp with malleable angle bar is furnished. The malleable angle bar can be bent to meet any steering knuckle conditions.



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GEARS

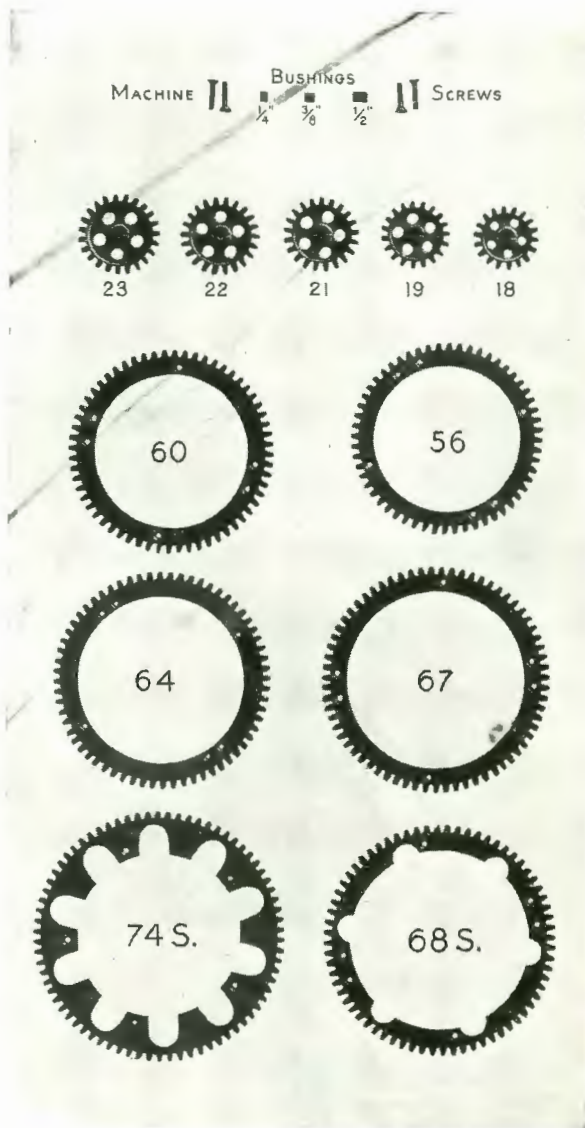


FIGURE NINE

Hopkins Electric Speedometer

GEAR DATA

DIAMETER OF FRONT TIRE INCHES	NO. OF WHEEL GEAR SEE FIG. 6	NO. OF MAGNETO GEAR SEE FIG. 6
30	56	19
30	68 s	23
32	60	19
32	68 s	22
34	64	19
34	68 s	20
34	74 s	22
36	67	19
36	68 s	19
36	74 s	21
40	74 s	19
42	74 s	18

Use 68 s and $\frac{3}{8}$ -inch or $\frac{1}{4}$ -inch Bushings on Close Coupled Wheels having Six Spoke Bolts.

Use 74 s and $\frac{3}{8}$ -inch or $\frac{1}{4}$ -inch Bushings on Close Coupled Wheels having Five or Ten Spoke Bolts.

Otherwise use Plain Gears and $\frac{1}{2}$ -inch Bushings.

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DIRECTIONS FOR ORDERING

In ordering
please state—

Name of Car

Model and Year of Car

Diameter of Front Tire

Whether Hooded or Straight Dash

Model of Speedometer Desired



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GUARANTEE

The HOPKINS ELECTRIC SPEEDOMETER and THE ELECTRODOMETER are guaranteed for one year against defects in material and workmanship. At any time within one year from date of sale a free inspection and test of any instrument will be made, provided transportation charges are prepaid to our factory and the seal is unbroken.

If the Speedometer is not accurate **within one per cent. over its entire speed range**, it will be repaired or be replaced by a perfect instrument without additional charge.

It is further guaranteed that neither magnet will lose more than **one per cent. of its magnetism in ten years**.

This guarantee is the only one that really protects the user.

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