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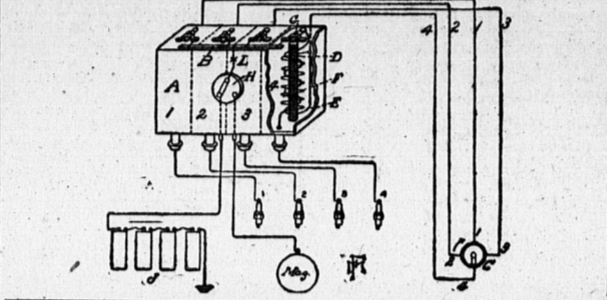
HINTS FOR The Motorist

BY ALBERT L. CLOUGH

IGNITION: THE VIBRATOR COIL SYSTEM

This system, sometimes known as the multiple-coil system, although used upon very different models of cars, at the present time is standard equipment upon cars of the most widely used make, millions of which are in service and thus merit a description. In the accompanying diagram of such a system intended for a four-cylinder engine. A represents the coil-box containing four identical vibrator coils of so-called unit type, that are arranged to be readily removable from and replaceable in the box. The circuit connections are permanently made to terminals fixed in the inside of the box itself and each coil unit carries contact pieces, which engage with these terminals so that, when a coil unit is inserted into one of the four compartments of the box, it is automatically placed in circuit by one side of its primary coil being electrically connected to the common connection bar B, the other side of its primary coil is to one of the

vibrator coil was originally intended to be operated on direct alternating current, the type of magnetism from which it is usually run is one which produces an alternating current that charges its direction sixteen times each revolution of the engine crankshaft and falls to zero between each alternation, but as these zero points are very short, current is available practically all the time and the coils are found to act satisfactorily. The master-vibrator system, quite large by used, is a modification of the above described system and in it the vibrators on the individual coil units are removed or short-circuited and a single vibrator is connected into the circuit at the point L between the switch and the common connection bar B, so that it acts to open and close the primary circuit of each coil unit as the current is directed to it by the action of the timer. By this arrangement, the sparks produced at all the plugs are uniform in timing and intensity, because the action of all the coils is controlled by one vibrator, which operates uniformly and not by individual vibrators having differing periods of vibration. The master vibrator itself is merely a vibrating spark coil with the secondary coil omitted, there being but a single winding carrying the common primary current, to magnetize the core, that operates the vibrating interrupter. Still another variation of the multiple coil system of ignition consists in



four wires leading to the timer or commutator C and the live terminal of its secondary coil to one of the other heavily insulated, high-tension terminals at the bottom of the coil box, to which the spark-plug cables are attached. This makes it possible to replace a defective coil without interfering with the other units and to substitute one coil unit or another, in the event of ignition troubles. The enclosing case of one of the coil units is represented as cut away, showing the core D, the primary coil E (in heavy lines), the secondary coil F (in light lines) and the vibrator G—the automatic connections of the coil unit to the coil box not being shown. It is a three-point switch mounted upon the front of the coil-box, having its arm connected to the common primary bar B, one of its points connected to one terminal of the battery of dry-cells J (the other terminal of which is grounded) and its other point connected to one terminal of a magneto on the other side of which is grounded to the engine. The spark-plugs are indicated at 1, 2, 3, 4. With the rotating portion of timer C on the contact where it is represented to be, the path of the current is as follows: From ground, through battery J with the switch in the position shown), through the left hand or battery switch point and B, through the vibrator and primary winding of coil unit No. 4, thence through timer wire 4 and its contact segment, the rotating portion of the timer and back to ground, with the production of a spark at plug 4 in the cylinder of the same number. The timer turns in the direction of the arrow and its roller next makes connection with the contact to which timer wire 2 and coil unit 2 are connected, causing the battery current to flow through coil unit and produce a spark at plug 2. The cranked over, while the magneto cylinders are sparked in the order 1, 3, 4, 2. Battery J is generally used only when starting the engine and is superior for this purpose because its current is available, no matter how slowly the engine does not generate its full current strength unless the engine drives it, it is rotated at a fair rate of speed. As soon as the engine is started, switch H is thrown over from its battery position to its magneto position and the magneto supplies the current. Although the

Sunday School Lesson

June 20—The Lord Our Shepherd.

Printed Text—Psalm 23.

Golden Text—
"Jehovah is my shepherd; I shall not want."—Psalm 23: 1.

Historical Setting.
Time—1050 B. C. Place—Jerusalem.

Daily Readings.
Monday, June 14.—The Lord Our Shepherd (Ps. 23) Tuesday, June 15.—False Shepherds (Ezek. 34: 1-10). Wednesday, June 16.—The True Shepherd (Ezek. 34: 11-16, 23-26). Thursday, June 17.—The Good Shepherd (John 10: 1-18). Friday, June 18.—Seeking the Lost (Luke 15: 1-10). Saturday, June 19.—"He careth for you" (1 Pet. 5: 1-11). Sunday, June 20.—"The Everlasting Shepherd" (Hob. 13: 12-25).

Setting.—David's whole life experience is reflected in this psalm. Two comparisons in it, the Shepherd, verses 1-4; the Host, verses 5, 6. To make 5, 6 express the shepherd idea seems a violent wrench of language, thoughts, and facts. The manifold grace of God is not confined to any one figure of speech, and David's heart overflowed with praise, beautiful to the Old Testament saints who pillowed their souls on it, is for us flooded with deeper richer, tenderer meaning by the character, work, life, death, risen power of the Good Shepherd. We see in this psalm of

in pastures" in the East where the sheep may be left alone while grazing. The shepherd must be always in attendance. In summer the pastures dry up and become brown. The hot earth is disagreeable, and the good shepherd leads the flocks away to sheltered nooks in and valleys where there is coolness. He seeks quiet waters and avoids arid den forests that sometime occur. Christ thus spiritually protects and leads his people.

Verse 3.—In case the sheep are lost, the shepherd seeks, finds and restores them. He guides them in paths of safety. In the same way Jesus came to seek and to save the lost; came to guide them in paths of righteousness so that they might be protected from temptation and sin.

Verse 4.—In the hill country of Judah there are deep, narrow gorges, dark, gloomy defiles and caves, into which the sheep may wander if left to themselves. When necessary to cross or go through such places the shepherd is ever watchful. He carries a club with which to defend the sheep, and a long staff used in guiding them.

Christ our shepherd is amply able to give us a similar sense of security.

Verse 5.—The "table" simply means the prepared meal. It is the feeding-ground of the sheep. Oriented shepherds saw that their sheep were guided to spots where there were no poisonous plants or snake infested places. Christ our Lord guides us into all truth. At the door of the sheepfold the shepherd uncovers the bruises and thorn scratches of the sheep.

We prefer to believe that the Psalmist continued the shepherd figure throughout the Psalm.

Verse 6.—The goodness and the loving kindness of the shepherd followed the sheep through ravine, bramble, briar and all dangerous places, and was ever present with them in safe pastures.

The child of God is similarly guarded and there is provision made for his dwelling in the presence of Jehovah forever. Christ said: "In my father's house there are many mansions." "I go to prepare a place for you."

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—AT—
North Tryon Driving Park
BY THE TRYON HORSE BREEDERS' ASSOCIATION

—ON—
Wednesday, July 7th, 1920

1. 2.40 Class Trot, (Stake)	Purse	\$250.00
2. 2.30 Class Pace	Purse	250.00
3. 2.21 Class Trot and Pace	Purse	250.00

Entries for 2.30 Pace and 2.21 Trot and Pace close June 27th, 1920. Entries for 2.40 (Stake) close June 16, 1920 and horses must be named on that date.

Entry Fee 5 percent of purse, 5 percent additional from money winners. After premiums are apportioned should there be any for which distanced horses stand equal, they to race one heat to decide the money.

All races mile heats, best three in five to harness, and to finish at the end of the fifth heat when money will be awarded according to standing in summary. Purses divided 50, 25, 15 and 10 percent.

A horse distancing the field or any part thereof, is entitled to first money only. Hopples allowed.

In all classes five to enter and three to start. Classes not filling may be declared off. Right reserved to change order of program, decline any entry, bar any driver, or declare off and fill without re-advertising, any races not satisfactorily filled.

Usual allowance, 3 seconds for Trotters in mixed classes. Hay, straw and stabling free.

This Track is a member of the National Trotting Association, and will be governed by its rules except where they conflict with the above.

GORDON W. DAWSON, President.
JOHN A. LYMAN, Secretary.

9712-6-14mws61.

Young Ladies Wanted

We want about 50 young ladies to learn cap making; it is very easy and clean work similar to dress making. Factory is large with plenty of windows, sunlight and fresh air. Experienced girls are earning from \$15.00 to \$22.00 per week. Hours 7.30 a. m. to 6 p. m., excepting Saturdays when the factory closes at 12 a. m. Any girls interested in a position will please apply personally or by letter to Miss Emily Gallant, Kinkora, Prince Co., P. E. I., or the Charlottetown Selling Agency, Charlottetown, P. E. I. who will be able to furnish full information.

EASTERN HAT & CAP MFG. CO. LIMITED
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SWELLINGS

come down, just as soreness and lameness come out, when "ABSORBINE JR." is rubbed in.

Enlarged glands, varicose veins, wens, cysts, soft lumps, boils, and other inflammations quickly reduced or healed by

Absorbine Jr.

When an accident happens, you want help quick! A bottle of "ABSORBINE JR." in the house is the best emergency treatment for cuts, burns, bruises, sprains, strains. It relieves the pain—reduces inflammation—prevents infection. Pleasant, no stain, no grease.

\$1.25 a bottle—at most druggists or sent postpaid by

W. F. YOUNG, Inc.,
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FOR SALE

The undersigned offer my farm of 23 acres of choice land and 18 acres clear balance covered with a good growth of soft wood.

New house, buildings in good repair convenient to school and churches within two miles of Covehead harbor will be sold with or without crop to suit purchaser. Would suit fisherman or tradesman can be inspected at any time by applying to the owner.

JAMES McCORMACK,
West Cove Head.
9728-6-15-41pd.

Montague Horse Races

The free for all, trot and pace for the Montague Races to be held August 11th, not filling has been declared off, and a 2:27, trot and 2:20, pace mixed stake class, has been substituted with a purse of \$300; entries to which close Saturday June, 19th, when one per cent will be due, other payments will be the same as for the other two classes.

T. G. IVES, Secretary.
9691-6-12-71

Final Notice

A RREARS FOX TAX

Notice is hereby given to all Companies, Firms, and individuals in arrears for Fox Tax that unless the same is paid to the Provincial Treasurer, Charlottetown or before the 2nd, of July, 1920 legal proceedings will be taken for recovery thereof without further notice.

By Order,
ARTHUR NEWBERY,
Asst. Provincial Treasurer.

Desirable Residence For Sale

The undersigned, proposing to remove to Charlottetown in the near future as being more central for his business, offers his property at Misouche for sale.

The property consists of one acre of land, with first class residence in excellent condition, with concrete cellar, hot air furnace &c., and necessary outbuildings. One half acre thoroughly cultivated, and with young and thriving orchard.

This property is situated in the heart of the village, near to railway, convent, public school, railway depot and stores. Apply to

JOHN B. GAUDET,
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Don't Do It Any Longer

Let our water system do it for you. We will install a Milwaukee Compressed Air Water System that will deliver water DIRECT from well to house, barn or any place you want it at all times and under any desired pressure.

Let us explain it to you.

Currie & Murnaghan
71 Queen St. Charlottetown.

MAIL CONTRACT

SEALED TENDERS, addressed to the Postmaster General, will be received at Ottawa until noon, on Friday, the 25th June, 1920, for the conveyance of His Majesty's Mails, on a proposed Contract for four years, six times per week on the route Mount Stewart Rural Mail Route No. 3 from the Postmaster General's pleasure.

Printed notices containing further information as to conditions of proposed Contract may be seen and blank forms of Tender may be obtained at the Post Office of Mount Stewart and at the office of the Post Office Inspector.

JOHN P. VERRILL,
Post Office Inspector,
Charlottetown, May 15, 1920.
8892-5-15S8131.

Pictou-Charlottetown, Murray Harbor Steamship Route

S. S. "MAGDALEN" WILL leave Pictou, N. S. every Thursday after arrival of morning train from Halifax, for Charlottetown direct and will leave Charlottetown for Pictou every Friday at 11 a. m. for Pictou; will also take freight for Newport and Murray Harbor every Tuesday. These sailings will be continued from now on to end of September.

GEORGETOWN STEAMSHIP CO.
June 16 31

When You Get up "fired as a dog" and sleep is full of ugly dreams you need BEECHAM'S PILLS

Fatigue is the result of poisons produced by exercise or failure to digest food properly, and eliminate it promptly with the aid of liver and kidneys.

W. A. P. asks: Will it do any harm to my engine to run it on kerosene instead of gasoline, using the regular carburetor now fitted to it? In so doing should a heavier cylinder oil be used? Do you advise mixing a small percentage of cylinder oil with the fuel and so, what proportion?

Answer: We do not believe that your engine would run satisfactorily, if at all, on kerosene, with an ordinary gasoline carburetor such as yours. You certainly could not start it on kerosene, and we fear that you would have serious lubrication difficulties due to the kerosene destroying the oil film on the cylinder walls and thinning the oil in the crank-case. It is doubtful if a heavier oil would overcome the

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HOW A STORAGE BATTERY "GIVES OUT"

Like Many Other Things. When It Begins To Live It Begins To Die.

The ability of a storage battery to furnish the immense current required in the starting operation and to keep in reserve sufficient energy successfully to bridge over periods of heavy demand and light charge, depends primarily upon the condition of its plates and hence upon the amount and condition of the active material—lead oxides attached to the antimony-lead grids that form the supporting part of the plates. In service, there is a gradual deterioration of the plates and it is usually this which has progressed far enough, that terminates a battery's usefulness. Through swelling and shrinking of the active material in charging and discharging, especially at unreasonable rates, the supporting grids are sometimes bent or "backed" and particles of the active material "chipped" off, thus reducing the reserve capacity of the plate. Portions of it also sometimes become loosened enough to lose good electrical contact with the grid and their capacity is lost and, through lack of proper charging, portions of the active material become converted into sulphate, which cannot be converted back into the active form. The tendency thus is for the capacity of the plates to decrease and for the resistance of the whole cell to increase, so that not only is there a failure to store the normal amount of energy, but a failure to carry its current at the initial very high rate. The material which falls from the plates is, moreover, likely in time to collect sufficiently at the bottom of the jar so that it makes contact between the positive and negative set of plates and a short-circuit occurs which discharges the cell. Furthermore, the pores in the insulating separators between plates, which are dependent upon the inter-electrolyte circuit, tend to become filled with solid impurities in the liquid and the resistance of the cell increases, cutting down the available rate of discharge. The separators themselves, after long use, under heat, finally give out and permits short-circuits to occur. If a battery is left in a fully discharged condition for any length of time the formation of irreducible sulphate lessens plate capacity; if it is charged at abnormal rates or greatly overcharged the shedding of active material produces the same effect and operation at excessive temperature produces rapid deterioration. Too strongly acid electrolyte attacks the separators and metallic compounds in the water used in refilling injures the plates by setting up local action.

USING KEROSENE AS FUEL

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PECULIAR IGNITION TROUBLE

L. S. writes: The engine of my six misses at high speed and I am sure this is an ignition trouble, because I have put in a new carburetor and had the valves ground. If I put a new set of breaker-points into the distributor or a new set of plugs into the engine, the car runs perfectly for about two weeks, when missing at high speed occurs again.

Answer: If the breaker-points are found burned away to too wide an adjustment and in a rough condition after two weeks it is possible that the generator is furnishing too high voltage to the ignition system or it may be that there is trouble in the condenser. The resistance unit on the distributor head is not short-circuited, is it? If you find the spark-plug gaps too wide, after two weeks service, this would also indicate over voltage on the system. In case you do not find the breaker-points burned, we cannot say why missing recurs after two weeks. Dirt on the inside of the distributor or poor insulation of spark-plug cables, cause missing at high speeds, especially.

SIGNS OF BATTERY DETERIORATION

They Are Likely To Appear After A Year's Use

A Battery cell that is short-circuited internally is indicated by its failure to hold the charge that is given it. The gravity of the liquid tests very low as compared with that in other cells and the lights burn dimly. Such a short-circuit may often be removed by having the cell taken apart, the shed active material removed, the plates and separators washed and new separators put in, if required. If the plates are not still in good enough condition to warrant this, any reliable battery service man will so advise an owner. The fact that a battery, although free from short-circuits, is nearing the end of its useful life, is indicated by its failure to store enough energy to meet requirements, although the charging rate has not diminished and the demands upon it have not increased. It is also sometimes indicated by its failure, even when fully charged, to deliver the necessary current to crank the motor at normal speed. Excessive dimming of the lights during the cranking operation may be taken as a sign of battery deterioration, assuming a full charge and the starting system and engine in normal operative condition. When symptoms like these appear, especially after battery has been in service for more than one year, it is best to take it to a battery service station and have it inspected with a view to ascertaining whether there is anything that can be done to it to prolong its life or whether a new battery should be installed in its place. All battery manufacturers offer fairly liberal replacement propositions as a matter of service and in order to hold their customers.

Questions of general interest to motorists will be answered in this column, space permitting. If an immediate answer is desired, enclose self-addressed, stamped envelope. Address Albert L. Clough, care of our office.

Wash Day and Backache

Wash day is the least welcome day of the week in most homes, though sweeping day is not much better. Both days are most trying on the back.

The strain of washing, ironing and sweeping frequently deranges the kidneys. The system is poisoned and backaches, rheumatism, pains in the limbs result.

Kidney action must be aroused—the liver awakened to action and the well known Receipt Book authorment as Dr. Chase's Kidney-Liver Pills. This favorite prescription of the wellknown Receipt Book author will not fail you in the hour of need.

One pill a dose, 25c a box at all dealers, or Edmanson, Bates & Co., Toronto.

Dr. Chase's Kidney-Liver Pills

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