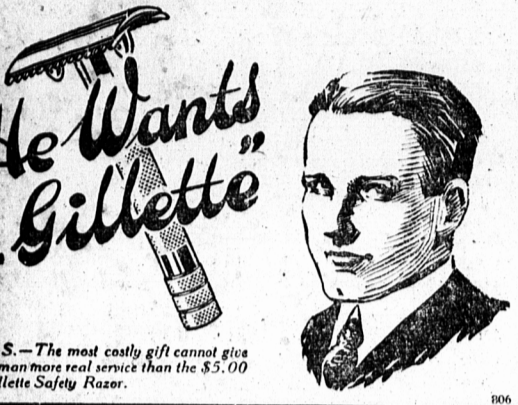


ONLY 5



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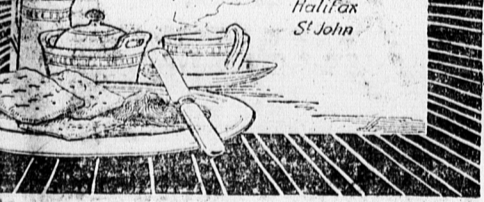
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Hints for the Motorist

BY ALBERT L. CLOUGH

BRAKES CHATTER ON REVERSE



F. M. writes:—When my car is moving backwards and the brakes are put on, there is a loud noise. What is the cause of this? There is also a noise, which sounds near the clutch, when the car goes over a small bump. What are these caused by?

Answer:—Probably the brake bands chatter badly, when on reverse, which is very likely due to the bands not being adjusted equally distant from the drums at all parts of the circumference or to the band material being glazed over. Unless there is something inherently wrong with the designs of these brakes, readjustment of the bands and other parts, in accordance with directions, and the thorough cleaning of the band material with kerosene and a stiff brush, will remove this trouble. The noise made by passing over a bump may be caused by so many things that it is hardly possible to enumerate them fully. The sound may seem to originate near the clutch, but it may have nothing to do with this part. You better be sure that the ends of the steering drag link are not loose and that there is no side play in the front spring pins. Also that the universal joint is not worn or dry and that the pedals do not strike the footboards. Running the car with the floorboards removed may help you to locate the difficulty.

FUEL FEED MAY BE FAULTY



J. P. B. writes:—My car has been running finely, when suddenly it lost nearly all its power, choked, spit back into the carburetor and stopped. It will start easily, run well for about one minute, backfire through the intake once or twice and stop. It can be kept running by priming, but cannot be throttled down. Where should I look for the trouble?

Answer:—The fact that the engine can be kept running on priming, would seem to eliminate ignition trouble, and the most natural theory regarding the backfiring and stopping, after running a very short time, is that the gasoline supply fails. Just the instant that it stops in this manner the next time, try opening the carburetor drain-cock, if very little gasoline runs out, and then stops running freely, you can assume that your feed-pipe is stopped up or there is something wrong with the carburetor float.

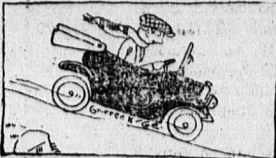
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COMPARING NOTES WITH FELLOW OWNERS

What Kind of Results Are They Getting and How Do They Match With Yours?

The motorist who drives his own car and is anxious to keep it at its highest efficiency and in the best possible condition in all respects, will find much help toward these ends, in occasionally trying out or riding in other cars of the same make and model—for instance the agents demonstrating cars—and by talking with other owners of identical cars. Nothing assists more in keeping an individual car more to the mark. In drawing one's own car, to the exclusion of others, one becomes accustomed to and soon takes for granted many peculiarities, often amounting to defects and may finally lose sight of them, as such, while they keep on preventing the best results from being obtained. However, a ride in a car, which is free from these particular idiosyncrasies, brings them into prominent notice. A car becomes "ratty" so gradually, that one hardly realizes it until a like car, or any other assigned one, is used. Engines become noisy and lose their "pep," by such easy stages, that the change is hardly recognized until one has a smooth running and snappy one to serve as a standard. The "wobble" accumulates in a steering gear by such imperceptible increments, that one may almost forget how a properly adjusted steering gear acts. In general, it is common experience that, when a motorist tries out some one else's car of the same model, especially if it happens to be a pretty good one, he is forcibly reminded of things about his own car that are not "up to snuff" and can profitably be attended to. Just try it and ask fellow owners about their gasoline mileage and other things. Perhaps useful "pointers" may thus be elicited.

TRANSMISSION NOISE



G. M. asks:—What makes the gears of my Ford noisy, when I am driving down hill, with the transmission in neutral and the brake on? There is also some gear noise when the car is standing with the engine idling. The car is a 1914 model.

Answer:—We imagine that the transmission is badly worn, particularly as to the bushings of the gears out of perfect mesh. The gears themselves may also be considerably worn. Putting on the brake develops lost motion among the parts and increases the noise. If, when coasting hills, you will leave the transmission in high and apply the brake as necessary to control speed, you will eliminate gear noise and also save the brake most of the holding back. If worn from wear, as the engine will do parts in your transmission are eliminated, there should be little noise when the engine idles. Any tugging of the low or reverse speed bands should be avoided.

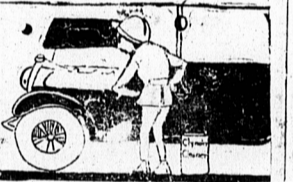
USING KEROSENE FOR ANTI-FREEZE



E. B. asks:—Do you think that I should get satisfactory results by using kerosene as an anti-freeze liquid instead of alcohol?

Answer:—We doubt if you would like it, although some users manage to "get by" with it. Kerosene escapes from slight leaks in radiator and connections that prove tight to alcohol mixture and when it does escape, it makes a disagreeable mess. It does not mix with water and, if there are any partly clogged passages in the radiator and these do not completely empty, when the radiator is drawn off, kerosene will not replace the water, freezing and bursting may occur. If you try it, be sure that your radiator is cleaned out before doing so. Kerosene deteriorates rubber connections and, of course, gives off inflammable vapor when overheated. Its capacity for heat is low, as compared with water, and it is thus a rather inferior cooling agent under severe service.

CARBON REMOVAL PROCEDURE



K. M. G. asks:—Is it necessary for me to remove the cylinder blocks of my eight cylinder car, in order to clean off the carbon and grind the valves or not?

Answer:—As the cylinders of this engine do not have a removable head and have large, capped openings over the valves, we believe that carbon can be burned out by the oxygen process, very satisfactorily, but of course if the manufacturer do not approve of this practice, we should not recommend it. You may find that you can scrape off the deposits pretty thoroughly by hand, using special scraping tools inserted through the valve openings. There is no object in removing the blocks, so far as valve-grinding is concerned. We strongly advise against tearing down an engine, where this can be avoided.

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AIR COOLING

Strictly speaking, all gas engines are air-cooled, in the sense that excess cylinder heat is finally taken away by the surrounding air, but in that air-cooled engine so-called,

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He had to be out at his work—but he didn't have to sneeze and snuffle very long. He took the jar of Mentholatum and rubbed some inside and outside his nostrils when he went to bed. He soon breathed freely again and slept well all night.

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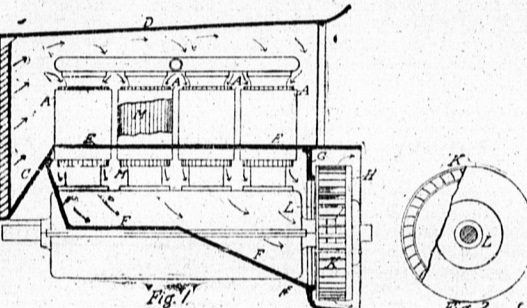
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instead of circulating through jackets enclosing cylinders and keeping the water cool by exposing it to the air in a radiator, a current of relatively cool air is constantly circulated around the cylinders, themselves, cooling them as one would cool a hot object by blowing upon it. Air has a low capacity for heat as compared with water, volume for volume, and thus a large quantity of air must be brought into contact with the cylinders and experience shows that it must be forcibly circulated so as constantly to bring fresh air into contact with the hot cylinder walls. The air-cooled cylinder must be so constructed as to have a minimum insulating surface, to reduce the amount of heat absorbed from the burning charges, and must have a maximum external surface so formed



to present the greatest exposed area from which the air current can abstract heat. For these reasons the cylinder design is usually of the valve-in-head type, as doing away with valve-pockets and sealing a combustion space of the least area, and on the outside wall are cast deep, closely spaced ribs or cooling flanges, thus affording a large surface from which heat may be absorbed by the air. In order to promptly free the cylinder of hot gases and prevent their heat from being absorbed by the metal, very large exhaust valves are used. Cooling flanges are also formed upon the cylinder heads and other exposed surfaces, especially those of parts traversed by the exhaust. Since the temperature within the cylinder increases with the compression pressure employed, this is usually kept rather low. The smaller the cylinder bore the easier it is to air-cool, because the surface bears a larger ratio to the volume. The outside surface of a water-cooled cylinder cannot be heated above 212 degree Fahrenheit, so long as water is circulating around it, but there is no such limitation to the temperature of an air-cooled cylinder, which may be maintained at as high a temperature as the cylinder oil will withstand without losing its lubricating qualities. This higher working tempera-

ture of the air-cooled cylinder insures fuller vaporization of low grade fuel and higher gasoline economy. The accompanying diagram, Fig. 1, illustrates the principle of an advanced form of positive air-cooling. Here are shown four cylinders, with thin, deep, vertical flanges M, cast into their external surfaces. Each cylinder is surrounded by a cylindrical metal casing A, fitted closely around the projecting edges of the flanges, thus creating a series of air passages between two neighboring flanges, the cylinder wall and the casing A. B, the front of the hood, is constructed with a series of air openings, inclined upwardly and to the rear and a deflector C, running crosswise of the hood space, assists in directing entering air upward toward the top of the engine. D is a section of the tightly closed hood, the tight sides of which are not shown, and E is the section of a partition (a continuation of C), which fits tightly around cylinder casings A and divides the hood space into an upper and a lower compartment, the sides of the hood closing tightly against it. Thus, air entering through B, has no exit from the upper hood compartment except between cylinder casings A and the hot, flanged cylinder surfaces. F is the section of another partition, against the outside edges of which the hood sides close tightly and which is continuous with the crank-case. Together with partition E, it forms a space that is closed except at its rear in the vicinity of the flywheel. Air passing downwardly into it, through cylinder casings A, is directed, by the deflecting cross partition C into the flywheel H which is also a centrifugal suction fan. When the engine is running, air within the fan flywheel is thrown outwardly by the curved fan blades K, escaping rearwardly under the car, and air is drawn through the fan inlet L, Fig. 2, creating a tendency toward a vacuum in the hood space and causing outside air to enter through B. The entering air passes into the upper hood space and flows down through cylinder casings A, in nearly equal amounts, abstracting heat from the cylinders and enters the lower hood space, from which, as it can take no other course, it enters the fan inlet L and circulation thus set up continues so long as the engine is running, the rate of circulation being nearly in proportion to engine speed and hence nearly in accordance with the rate at which the cylinders require to be cooled.

Direct, air-cooling obviates all trouble due to the maintenance of a water-tight circulating system, such as leaking, clogging and freezing and permits of some reduction in car weight, by dispensing with water, cylinder jackets, radiator and piping. An air-cooled engine heats up to its working temperature very promptly, but this method of cooling does not possess so great a margin of safety against overheating, under extraordinary conditions, as water cooling.

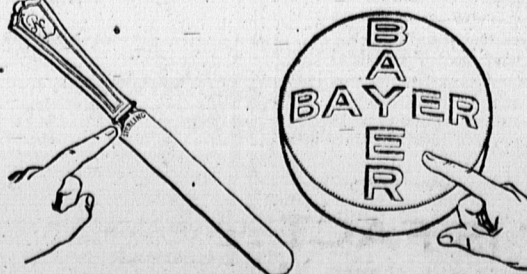
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1,000 POUNDS OF BUTTER.—Canada's first combination of three direct generations of 1,000 lb. cows has just been completed in the herd of W. C. Houck, Chippawa, Ont., the three generations being as follows: Jemima Johanna of Riverside, 1,280 lbs. butter, 30,373 lbs. milk; Jemima Johanna Poseh, 1,215 lbs. butter, 26,422 lbs. milk; Lenore Lady Jemima, 1,001 lbs. butter, 19,799 lbs. milk. From a standpoint of total production, this combination ranks second for butter only to one of the Ona family combinations, owned in Ohio, and it also ranks fourth for milk. Old Jemima is still owned in the Hough herd with six of her daughters as well as numerous granddaughters and great granddaughters and everyone is an outstanding individual.

FLOOD OF CANADIAN COIN.—Because of being flooded with Canadian silver currency, the merchants of Ogdensburg, and practically the only centre in Northern New York where Canadian silver had been taken at par are pledging themselves to take silver at the prevailing discount and pass it out on the same basis. The merchants, who do a large Canadian trade, claim that hundreds make a practice of taking silver to the Canadian side and exchanging it for Canadian currency, realizing handsomely on the transaction, and then flooding the Ogdensburg money market with Canadian silver. They claim that it is a rare thing in that city to see United States in circulation.

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