

## NO GAS TROUBLES IN THE GOOD OLD DAYS

Early English Designs Had No Carburetor.

## GAS NOW LIKE KEROSENE

In Studying How to Use Fuels of Lower Grade Windows Were Put in Carburetors.

It is perhaps a fortunate thing for the automobile industry that in its beginnings, the early builders had for a fuel gasoline of a far different grade than that which we use today. Though we still call our motor fuel "gasoline," it actually is much more like kerosene than it does gasoline that the designers of the first automobiles knew. The gasoline of 20 years ago was an extremely high-grade, volatile fluid that mixed with air so readily that the early designers really never knew what a carburetor problem was. In fact the very earliest cars of French and English design actually had no such thing as a carburetor.

From the top of the fuel tank under the front seat hung a number of wicks such as were used in kerosene lamps. Drawn up by the wicks, the gasoline evaporated, and mixed with the air and was drawn into the cylinders through a long tube.

But This Couldn't Last. It may be imagined that the designers of those days had their hands full with such problems as ignition and lubrication, and it is probably just as well that the problem of carburetion did not give trouble until later years when the other questions had been satisfactorily solved.

By the time fifteen years of motoring had elapsed, the carburetion problem had begun to be very serious indeed. The consumption of motor fuel had reached such enormous figures that despite the utmost efforts of the oil industry it was impossible to produce anything like an adequate supply of gasoline that approached the old standards. Between 1910 and 1917, the production of automobiles increased eightfold, while the production of oil increased only threefold. There was no other way to supply the demand of the motor users than to give them a lower grade of fuel to make them utilize a greater percentage of the crude oil product. The early-day gasoline was one of the very first products of the process of distillation, one of the lightest oils that rose at the lowest temperature in the still.

It became necessary to use more and more of the heavier fuels that were less volatile and required a higher temperature to make them evaporate in the still. The result was that the "gasoline" of today is now hardly distinguishable from a very light kerosene.

Looking Through Windows. It soon became evident to users and to engineers alike that the heavier fuels were not giving the same degree of satisfaction. The lighter fuels did. In the course of their investigations to find out what was the trouble, the engineers of one factory actually put windows in the side of the carburetors and manifolds of their experimental cars to see what was causing the trouble. This is what they found:

Into the stream of air drawn in by the suction of the piston, the carburetor sprays the gasoline. Little drops of the heavier elements of the gasoline are carried along by the stream of air. If they strike a sharp corner in the intake manifold, they fall, or if the air stream moves too slowly, they also fall.

Drop adds to drop, a little puddle of raw gasoline collects and is drawn into the cylinder. It runs down the cylinder wall, past the piston, "cutting" the essential film of lubricating oil from the cylinder wall and dropping into the crankcase, dilutes the lubricating oil and ruins its lubricating properties. Carbon deposits form. All sorts of motor troubles develop. Bearings wear, and "knocks" and all kindred symptoms of motor "grief" appear.

## MODERN AUTO WASTEFUL

TOO HEAVY, SAY STUDENTS OF CARBURETION.

Day Coming When Much Lighter Car Will Go Many Miles Further Per Gallon of Gas.

Those who have studied the fuel problem and carburetion agree that the modern car wastes far too much gasoline for the work it does. Carburetor engineers have given us the best designs they possibly can, the refiners of fuel are giving us the best fuel possible under existing conditions. If one gallon of gasoline now performs only one-third the work of which it is capable, where is the two-thirds waste?

The answer is the cars of today are too heavy. Lighter cars will bring about so marked a reduction in gasoline consumption and so many other advantages in performance, increase of tire life and of car and road life, that the entire industry is bound to take up the light weight question and carry it to its logical end. Cars of the future will be so much lighter that it will be the common occurrence to hear of 30 miles per gallon of fuel, instead of considering it as a phenomenal performance as at present.

That this can be done by reducing the weight of the vehicle is quite easy to see. The greater the load to be started, and carried along on roads and up hill, the greater will be the power required, hence the more fuel the engine will consume. Reduce the weight of the vehicle and even with the same size engine you get a marked reduction of fuel economy.

However, with the reduction in the weight of the chassis, there is no further need for the larger engine in order to get the same performance as before. The engineer recognizes this, for he knows the results he will get with a given weight per horsepower and with a given gear ratio.

A few years ago a test car was driven over the roads of Long Island and on one gallon of gasoline this car traveled over 30 miles. While some of this distance was no doubt traveled by coasting, the greater part of it was done with the engine pulling. This test car was stripped of body fenders and many other parts and was lightened to the greatest degree. This same car, while not giving 30 miles per gallon in service, does give phenomenal mileage solely because of the light weight of the vehicle.

If the reduction in weight brought with it only a saving in gasoline, a

great many owners would be entirely satisfied. But the mere fact that the car consumes less gasoline should be an indication of other pleasing results that go with it. It can readily be understood that a light weight started from a rest takes less effort than it would to start a heavy body. A baby carriage can easily be started and pushed around. If an engine were fitted to it, it would probably give 250 miles per gallon. Motorcycles show 35 to 50 miles per gallon, the cycle cars of a few years ago showed anywhere from 25 to 40 miles per gallon. The heavier the vehicle becomes the more gasoline is needed to get it started and the more it is needed to keep it going. Europe has recognized this long ago and that is why the European owner is very much surprised when he hears of such high fuel consumption figures as 10 and 15 miles per gallon. He believes that 20 to 30 miles is about what should be had and he is right.

## RIM INDUSTRY IS BIG ONE CONCERN MAKES MILLION TIRE SETTINGS IN YEAR.

Increased Demand Causes Firestone Company to Start \$1,000,000 Plant.

Ground was broken this month at Akron for an additional \$1,000,000 plant in the Firestone Tire and Rubber Company. The new plant will house the Firestone Steel Products company, which annually produces approximately 1,250,000 demountable rims for pneumatic automobile tires and 60 per cent of the steel bases used in the United States for solid truck tires. That the company has had a phenomenal growth, equalled by few organizations in the automotive and allied industrial fields, is evidenced from a brief sketch of its history. Issued by J. G. Swain, its vice president, in announcing the beginning of construction of the new plant. "The Firestone Steel Products company," the announcement says, "at present occupies the group of buildings which until 1910 housed the entire manufacturing facilities of the Firestone company. This group which was then too small to meet the demands for Firestone tires, is now found to be too small to meet the demands for Firestone rims.

"It is of interest to note that the Firestone type 'C' rim is built today substantially in accordance with its original design, and is the only rim offered to the motor industry which is built to carry all sizes of tires, from a 3 1/2-inch to a 10-inch. This rim is recognized as the standard rim of the automotive industry, and has been adopted by practically every high-class automobile and truck manufacturer in the United States. The Firestone company also builds the well-known type 'E' split rim, which is used on the large majority of the moderate priced passenger cars.

"H. S. Firestone, president of both the steel products company and the tire and rubber company bearing his name, went into the rim manufacturing business not because he desired an additional source of income, but because as a tire manufacturer he thought the tire industry needed a more substantial and practical rim than was being manufactured at that time. Before going into the manufacturing business he made an effort to induce rim manufacturers to build a rim such as he thought the industry needed and being unable to induce the manufacturers to build a more practical type of rim, he started to secure rims from other sources. "The Firestone rims were first manufactured in Cleveland, the rim

## ELIMINATING ANOTHER BAD STREET.



Morrison street between Nineteenth and Twentieth at last to be paved. The city took the contract for hard-surfacing it and, as shown in the picture, rock is being spread preparatory to applying the "hot stuff." Its completion should relieve some of the traffic congestion at Nineteenth and Washington by providing an outlet from Nineteenth on Morrison straight through to upper Washington.

produced being of the demountable type and embodying the most finished thought in rim construction, it was immediately adopted by a large portion of car manufacturers. "By 1910 the large sizes of solid tires were coming into use. There was a need for steel bases for these tires. As the demand promised to grow steadily, Mr. Firestone installed a welding plant as part of the Firestone Tire and Rubber company's plant, where they were fashioned. Shortly after he decided the company should turn out its own rims for pneumatic tires and enlarged the welding plant for the purpose.

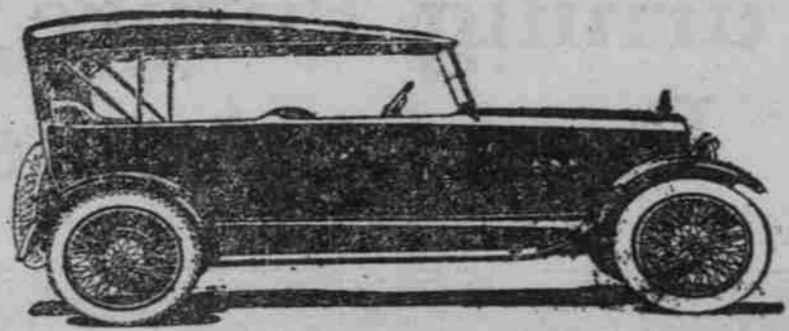
"In 1916 the demand for rims reached over the 1,000,000 mark, and by May, 1918, the business had grown to such proportions that Mr. Firestone decided to form a separate company to produce rims and steel bases. The Firestone Steel Products company was the outcome. "In the new plant the company will have facilities the most modern and efficient obtainable. The main building will be 860 feet long and 250 feet wide. Advantage will be taken of every opportunity to give the workers light and ventilation. The machinery, from large traveling crane to small riveting device, will be of the most improved type.

Immediately in front of the main building will be a 3-story office building, 170 feet long and 40 feet wide. It will be connected with the main building by covered bridges. A cafeteria and factory store will be housed in the basement of the same building.

Rims manufactured by the company, all of which have been evolved by Firestone engineers, are: Type "A," a quick detachable demountable rim. Type "B," a universal rim, used with either clincher or straight side tires. Type "C" for straight side tires on both type "E," a split rim for straight side tires.

Cleaning Spark Plugs. An excellent method of cleaning spark plugs or in fact any mica surface is to wash them first in a 10 per cent solution of acetic acid, which is an infallible solvent of grease and carbon deposits. The plugs should then be washed off with gasoline and finally dried by rubbing them with a cloth.

# Announcing 1920



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## PRESERVE ROADS, URGED

TRAFFIC SHOULD USE ENTIRE SURFACE OF HIGHWAY.

A. F. Masury Explains Why Driver Should Travel on Less Used Parts of Road, When Possible.

"Drivers can do as much, almost, for the maintenance of good roads as highway engineers," declares Alfred F. Masury, chief engineer of the International Motor company, manufacturer of Mack trucks. "Did you ever notice," asked Mr. Masury, "in going up a hill, particularly one paved with asphaltic concrete, that the surface on the right-hand side of the road is wavy and

weight and strain on the right-hand side of the vehicle and consequently the right-hand side of the roadway. Truck builders and wagon makers have even adjusted their axles and springs so as to withstand the greater strain on the right-hand side of the vehicle. The custom of arching roadways was formed in the early days of road making when dirt and porous-surfaced roads were the ones mostly in use, and it was necessary to give sufficient pitch to the surface of the roadway to drain off the water and prevent it from penetrating the surface of the road to soften and weaken the roadbed. With modern water-tight surfaces, the necessity for arching roads does not exist and engineers are designing roadways with very slight pitch.

WHY ENGLISH ARE SKITTISH American Cars Kept Out Because They're Better Value.

Premier Lloyd George's announcement of the suspension of board of trade licensing restrictions on the importation of American automobiles was the result of an increasing preference on the part of English motorists for the American cars quite as much as the urgency of increased motor transport to supplement other means of conveyance.

Formerly in England there was considerable prejudice against American-made motor cars. This prejudice is now ascribed either to ignorance of their true worth or to snobbery. One contributor to a British motor trade journal declares: "Quite honestly, there is no better value for money in the motor world than the average American car. The point at the moment, however, is not exactly one of sheer value, but whether, in our own best interests in the long run, we should admit the vehicles freely, ration their import, or bar them altogether."

Don't get arrested for violating rules—if you do, don't blame the police officer.

# 70 Republic Trucks Haul Produce In Portland

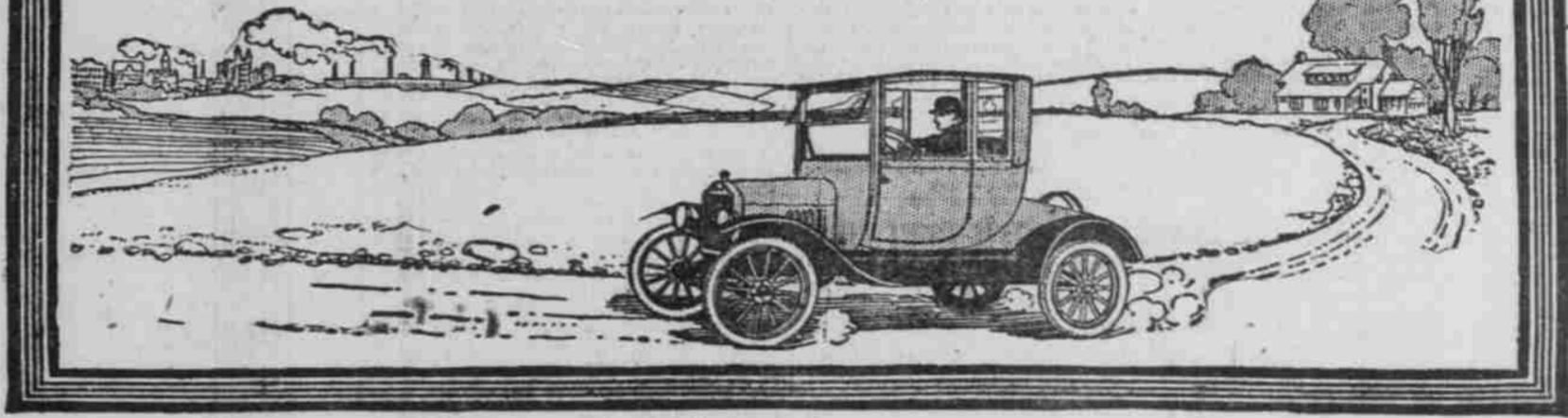
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## LOOK AFTER THE OIL CUPS

FAILURE LIKELY TO CAUSE DAMAGE TO CAR.

Plenty of Oil and Grease for All Parts Having Wear Best Insurance for Car.

Many an automobile owner pays a lot of attention to the outside of his car, keeps it clean and polished, but fails to look underneath. He fails to keep oil and grease in essential places and suffers for it in the end.

The underneath parts of the car are admittedly hard to get at, but that should not be an excuse for total neglect. Underneath the car there may be many places that require oil through small cups, oil holes, etc.

While some manufacturers are so far behind as to continue to use oil holes in exposed places, the owner of a car using them should not let them become filled with dirt.

A car with exposed oil holes on cross shafts and other parts should have automatic feed oil cups installed by a mechanic. Sometimes brakes are hard to operate after a trip over muddy roads. It is because mud gets into the joints at the brake bands and other places in the braking system. These parts cannot be properly cleaned merely by wiping. One must dismantle them to get a clean working surface that will operate freely when lubricated. Cleaning of this sort prevents rusting and certainly goes a long way toward making for better handling and car operation.

In filling the transmission and rear axle with oil or other lubricant be sure the filling hole or opening is clean. Pouring oil into a small opening with dirt all around the outside is bad, because the dirt goes right

with the oil. Then you hear gear noises and wonder how it happened so suddenly. Universal joints at best are hard to lubricate and even if covered with a leather boot are not proof against the ravages of dirt and mud. The more dirt you let accumulate around these parts the more dirt will get to the working surfaces. It pays to have the car washed underneath, but it also pays to wipe the surfaces after spraying on water. The wiping is necessary because some of the dirt sticks fast. Look over the smaller parts of your car, the parts that are hard to see and get at; also examine parts that don't give you any trouble. You don't have to do any more than to clean them and lubricate to make them run for a longer period. Be careful in applying tubes.

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