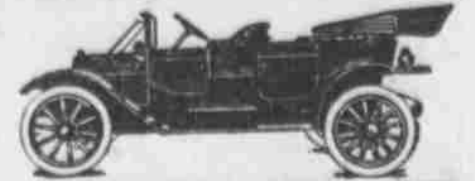




# AUTOMOBILES



## DENATURED-ALCOHOL CLEANS

The Best Decarbonizing Agent Now Known to Auto World.

RESULTS OF EXPERIMENTS MADE Prove Conclusively That Hard Deposits Accumulated Upon the Explosion Surface of Cylinder Can Be Taken Off.

To engineers and machinists interested in the care of automobile engines the subject of incrustations or carbonization is understood as being closely related to the subject of lubrication and carbonization. However, there seems to be a divergence of opinion as to whether most of the carbon found in the combustion space of cylinders is due to fuel or to the lubricating oil. It is sometimes concluded that because the deposits found upon piston heads are of a very solid nature and not fluff like gasoline soot, the carbon composing these deposits sometimes appear slightly oily, and it must be remembered that generally the surfaces of the combustion space are covered with an oily film which forms an adhesive surface perfectly adapted to catch and hold whatever gasoline soot or other solid matter is brought into contact with them. It seems reasonable that a mass of oily carbon would be built up, if fresh oil and fresh carbon were being constantly supplied to these surfaces and that the heat of combustion would serve to consolidate these materials. Therefore it does not seem necessary to assume that the lubricating oil is decomposed to account for the carbon incrustation in the engine which is using an over-rich mixture. It is, however, probable that the oil is also being decomposed; when one considers that generally in an engine which has run for some time, the underside of the piston head is coated with a carbon deposit. It might be well to mention here that a chemical analysis of so-called carbon deposit from the combustion space of an automobile engine, especially if this deposit has been formed during the summer months when the roads are dusty, will very likely show a percentage of silicates, which have been introduced in the form of road dust, held in suspension by the air passing through the carburetor. This dust upon coming in contact with the city surface of the combustion space lodges there and combines with the carbon deposited, whether from the decomposition of the lubricating oil or the fuel, to form the incrustations.

### Necessity for Removing Deposits.

The presence of carbon deposits on the surface of the combustion space of any type of engine is to be avoided, because the radiation of heat to the outside surfaces of the cylinder is retarded. The presence of these deposits causes spontaneous ignition, which is a common source of rapid depreciation of the working parts of an engine, in addition to affecting the economical and quiet operation of the engine. Where the deposits are present in sufficient quantity, depending upon the design of the engine and the service in which it is employed, the operation of the engine may be entirely prevented, due to spontaneous ignition (sometimes called pre-ignition or self-ignition) is explained as follows: When the engine is in operation the temperature of the gases in the combustion space during the period of combustion, is sufficiently high to raise the temperature of the carbon deposit to a red heat. The result is that the deposit retains the heat imparted to it during the power stroke, and serves to ignite the new charge of inflammable gas on the following compression stroke. The result is that the ignition of the gas and consequent high explosive pressure occurs while the piston is on the up stroke, the effect being that the force of the explosion tends to suddenly stop the engine and reverse its direction of rotation.

### Results in Undue Strains.

The inertia of the flywheel and momentum of the vehicle are generally sufficient to prevent this reversal, with the result that all of the power transmitting parts of the engine and vehicle are subjected to undue strains. The continuance of severe pre-ignition will in a short time cause the bearings of the connecting rod and generally the crank shaft bearings to fail. In many cases, however, the connecting rod is broken by the abnormal strain put upon it, before the bearings fail. In high compression engines it is possible for pre-ignition to occur due to an increase of compression, resulting from a decrease of compression volume because of a thick deposit of carbon, which may or may not be at a sufficiently high temperature to ignite the charge. Carbon deposits are frequently the source of loss of compression because of the flaky hard nature of these deposits; which will prevent the proper closure of the valves to a small part of the deposit is loosened and becomes lodged on the valve seat. Carbon deposits are the cause of greater wear of the working parts of the engine than appears at first thought. It is but necessary to filter the oil drawn from the crank case of a motor, which has been in operation but a short time and analyze, and closely examine the substance extracted from the oil by the filter paper. It will be found that this substance is principally granular carbon which has worked past the piston rings and collected in the oil. This carbon is carried to all parts of the motor with the oil. The result is, self-evident.

### Experiments Are Made.

To ascertain the action of denatured alcohol upon these carbon deposits a number of tests were recently made during a period of about a month. The temperature during this time varied from 6 degrees highest to 3 degrees Fahrenheit on the two coldest days. The engines of fourteen cars which have been in service from one to twenty months since being built or cleaned of cylinder deposits, were selected. In some of these engines the cylinder deposit was in the form of a coating of carbon, resembling lamp-black, and could easily have been removed by wiping the combustion space with a cloth. It was not practical to do this, however, with disassembling the engines. Three engines had deposits which were baked hard on the combustion chamber surface and covering the layer of hard deposit there was a layer of the flaky carbon, noted above. Two of the engines had deposits which were baked harder than any of the other engines examined. The areas of these surfaces, which could be inspected through the deposits was a dead black. To remove the deposits which were baked on the

## BONESETTER REESE TAKES NO CHANCES WITH HIS ARM

Among the numerous celebrities who have been completely captured by the thrills of the Oakland car, Bonesetter Reese of Youngstown, O., is the latest. Mr. Reese is unique among famous people as he has won his reputation through his ability to repair broken bones and to straighten out the kinks in strained tendons and ligaments. Among athletes, especially ball players, he is regarded as supreme in his specialty and many a diamond star has hustled to the bonesetter's home in Youngstown to be put in shape for the great American sport.

### What It Will Accomplish.

Ten conclusions were drawn from the experiments made:

1. Denatured alcohol is an efficient decarbonizer for the automobile type of engine.
2. It does not injuriously affect the surface of the metal with which it comes in contact.
3. Heat is not necessary when using denatured alcohol as a decarbonizer.
4. Heat accelerates the action of denatured alcohol when used as a decarbonizer.
5. Denatured alcohol when introduced in the combustion space of an automobile cylinder which is at the working temperature of the engine, will loosen the carbon deposit so as to permit the deposit to become separated from the walls of the combustion space and pass out of the cylinder with the exhaust gases when the engine is run.
6. The best results from the use of denatured alcohol as a carbon remover, are obtained when the combustion space of a hot engine is entirely filled with liquid denatured alcohol and permitted to soak for a period not less than six hours.
7. Denatured alcohol will act as a carbon remover when the engine is cold, provided the liquid denatured alcohol is in contact with the carbon-covered surfaces. The action of denatured alcohol under these conditions is about half as rapid as when the engine is hot.
8. The action of denatured alcohol as a carbon remover when introduced in small quantities into the combustion space of a cold automobile engine is positive but slow.
9. Where the fit between the piston rings and cylinder walls is imperfect, denatured alcohol will leak past the pistons into the crank case and cause the oil in the crank case to become unfit for use for lubricating the engine. However, when a sufficient amount of denatured alcohol has been added to this oil and circulated through the lubricating system of the motor, for a very short period in order to obviate the possibility of damaging the wearing surfaces of the engine, denatured alcohol acts as a cleansing agent, as evidenced by the unusual amount of foreign matter withdrawn with the denatured alcohol-treated oil.
10. Due to the cleansing action of denatured alcohol as noted in the preceding conclusions, an engine which has been in service for an extensive period, will show a marked increase in operating efficiency when thoroughly treated with denatured alcohol.

### Takes on Human Side.

The current advertising of the Hupmobile.

## ITINERARY OF THE KANSAS STATE AUTO ASSOCIATION

Following is the itinerary of the Kansas State Automobile Association run over the Omaha-Kansas City scenic route, starting from Kansas City May 9 and arriving at Omaha the next day:

Leave Kansas City, Kan., Grand hotel, at 7 a. m.; arrive at Leavenworth 9 a. m.; leave Leavenworth 9:30 a. m. arrive at Atchison at 11:15 for dinner; leave Atchison at 1 p. m.; arrive at Lancaster at 1:30 p. m.; arrive Everest at 2:15 p. m.; arrive at Hiawatha at 3:30 p. m. night control; leave Hiawatha at 7 p. m.; arrive at Pals City at 9 a. m.; arrive at Howe at 9:30 a. m.; arrive at Auburn at 10 a. m.; arrive at Nebraska City at 11:15 a. m. for dinner; leave Nebraska City at 12:30 p. m.; arrive at Wyoming at 1:30 p. m.; arrive at Plattsmouth at 1:50 p. m.; arrive at Fort Crook at 2:30 p. m.; arrive at South Omaha at 2:45 p. m.; arrive at Omaha at 3:30 p. m.

## CARBURETOR COMPANY HAS NEW DEPARTMENT

The Wheeler-Schebler Carburetor company of Indianapolis, makers of the Schebler carburetor, has established a publicity department in connection with its advertising department. Joe Kelly, well-known Indianapolis newspaper man, a specialist among sporting and automobile work, has been placed in charge.

Four Carloads of Chalmers. The Stewart-Tooser Motor company has received four carloads of Chalmers "Six" this week and Mr. Tooser reports that in all probability there will be a big shortage of Chalmers cars this year.

## Auto Truck Stops Cutting Pavements

The International Commercial truck is being used by twenty-five grocers in the city of Omaha, and in twenty-five other lines of business, from vacuum cleaning to plumbing, which leaves no room to doubt that the business requires delivery service realize the value of motor delivery.

Users of motor trucks the country over are protesting against the imposition of a special tax upon motor trucks. One motor truck user argues that a city could well afford to pay the owners of trucks instead of taking money away from them, and taxing the horse users to provide the funds.

## MANY EMPLOYEES ARE TO SHARE IN PROFITS

Operating great plants in Detroit and South Bend with a capitalization of many millions and turning out annually more automobiles and horse drawn vehicles than any other organization in the world, the Studebaker Corporation has put into effect a plan whereby certain of its employees may become stockholders and share in the profits of the concern.

## Trucks Do Great Work.

Two light Studebaker trucks have been steadily at work in Dayton, ever since the flood, operating a transportation line between that city and Springfield, O., and bringing in a steady stream of supplies. The trucks were lent by The Studebaker Corporation and are in charge of factory drivers.

## If You Want Genuine Bargains in Used Cars—We Have Them.

Cars that are in perfect condition, thoroughly overhauled, just out of the paint shop—and they are going to be sold.

COME AND SEE THEM AND TRY THEM OUT

McIntyre Automobile Co.  
2303 Farnam St.  
Omaha, Neb.

**AUBURN CARS**  
2559 FARNAM ST.  
The Most for the Money  
W. T. WILSON.

## April 1, is simple. It provides, after dividends shall have been earned on the preferred, and on the common stock, that a fund shall be set apart for the purchase, at market price, of common stock of the corporation to be held in trust for three-year periods and then distributed with its earnings among participating employees.

Users of motor trucks the country over are protesting against the imposition of a special tax upon motor trucks. One motor truck user argues that a city could well afford to pay the owners of trucks instead of taking money away from them, and taxing the horse users to provide the funds.

Every motor truck that comes into use in the city of Omaha means the banishment of two horses or more. This means reducing to that extent the difficulty and expense of keeping the streets of the city clean and protecting the inhabitants from fifth-fostered diseases—in this day of war against whatever hinders our civic improvements.

Operating great plants in Detroit and South Bend with a capitalization of many millions and turning out annually more automobiles and horse drawn vehicles than any other organization in the world, the Studebaker Corporation has put into effect a plan whereby certain of its employees may become stockholders and share in the profits of the concern.

The plan, which was adopted at a meeting of the board of directors, held on

## JACKSON CARS

We Mill too Steep No Sand too Deep

Are noted for their ease of Riding.

Because our engineers do not build for speed or power or long life alone; they build for comfort, too.

They know what makes a car comfortable—better, perhaps, than any other engineering staff.

They know that a car with the wheel base of the "Olympic" should have 24-inch wheels to be most comfortable.

They know that full elliptic springs ride from 32 1/2 to 100 per cent easier than any other type.

They know that 10-inch upholstery adds to the seat comfort; so we make it that thick.

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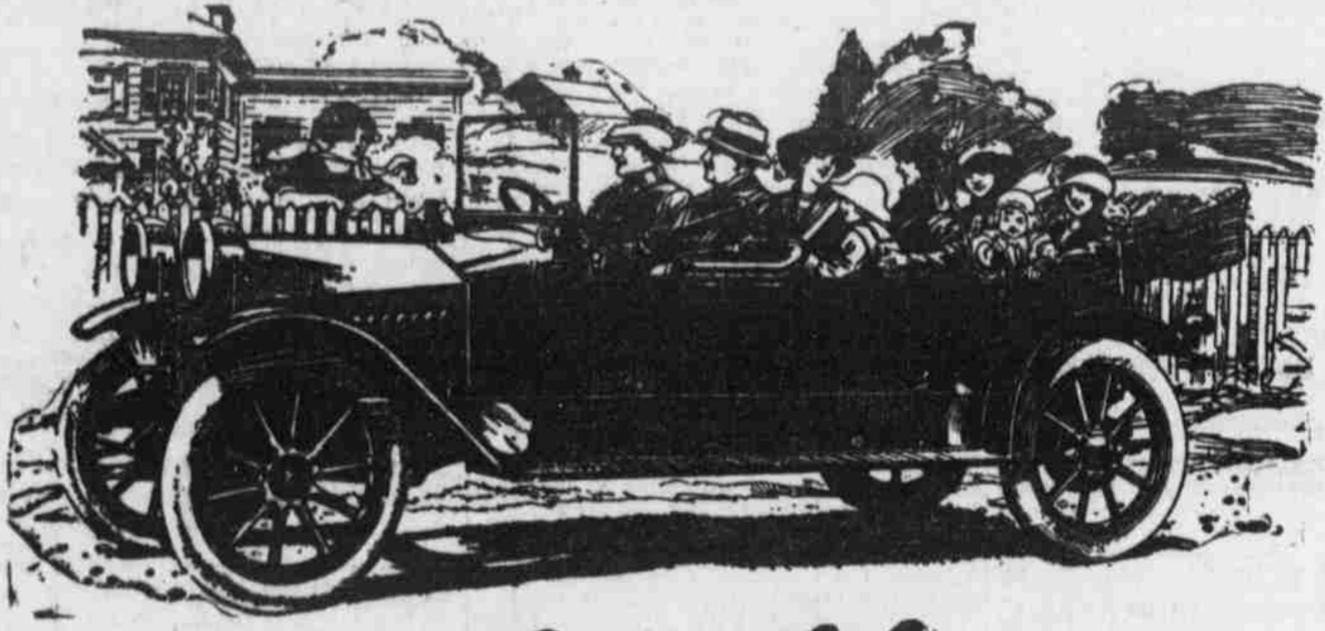
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# Why the Hupmobile has become The Car of the American Family



## Hupmobile

In quality and soundness of construction and materials—  
In style and good looks—  
In ability to cover a stated number of miles of road in a day—  
In stamina and durability—  
Even in passenger capacity—  
The Hupmobile meets the larger car on a dead level of equality.

These characteristics are so pronounced—and have played so large a part in the wonderful spread of the Hupmobile's popularity among all classes of car buyers—that the Hupmobile has truly become The Car of the American family.

**The Big Car's Prestige**  
It is because of these qualifications that the Hupmobile meets the approval of and comes within the reach of the man of moderate means.

It is because of them, again, that the man who drives a car of higher cost and greater size, is glad to invest in a Hupmobile and proud to place it beside his other cars, no matter how famous their names or how much they cost.

The prestige of the big car for the upkeep of a small one—that's what the Hupmobile stands for—and you'll find its benefits and its pleasures beyond any price.

**The Car of the American Family**  
It has broadened the social life of hundreds—yes, thousands—of families. It has broken the monotony of city-bound days; it has taken them to the country for week-ends, afternoon picnics, fishing and hunting trips.

It has brought them into closer touch with friends who had long remained at the end of a telephone wire or a mail route. It has become, in short, what the carryall was to many families before the motor car came into being.

For you and your family, the Hupmobile will do all these things. And if the family numbers more than four, you can have the six-passenger Hupmobile at a slight additional price, and an advance in upkeep that is scarcely noticeable.

You have long known of the Hupmobile's reputation for economy. Aside from the initial cost, the Hupmobile will mean important savings in the low cost of maintenance—the rarity of repairs and the small consumption of oil and gasoline for the mileage obtained.

The Hupmobile is widely noted for its fuel economy; and in this respect we invite comparison with any other car of equal weight and size. The Hupmobile's lightness also means longer tire wear. Read what our new factory manager said when he had been through our shops.

Our new factory manager, S. G. Humphrey, came to the Hupp plant several months ago. After he had become acquainted with our methods and our shop practices, he said to General Manager Hastings: "I have been engaged in the manufacture of automobiles for some thirteen years. I have been intimately in touch with the business methods employed in factories making cars selling at \$5,000 down to \$500. "In no factory with which I have been connected has the inspection, from the initial inspection of the raw material to the finished car inspection, been as close and rigid, and the limits of variation allowed so small, as they are in the Hupp Motor Car Company. "I believe you are spending too much time and money in these departments." "It is Hupmobile policy," Mr. Hastings replied, "and always has been, to be most strict in these matters. And we have no intention of ever abandoning that policy."

And this is only part of the story. It goes back to the quality of materials used—the goodness and toughness of the steels; it includes the character of the mechanical design; its simplicity, the compact construction of the unit power plant; the remarkable effectiveness of a single oiling system for motor, clutch, transmission, etc.

And back of all this is the sincere purpose of the Hupp Motor Car Company to give you, in the Hupmobile, a car of moderate price that compares, in construction and performance, to the highest priced productions.

**Steadily Grows in Favor**  
We feel that we are doing this. We feel that we have done it from the very first. And the Hupmobile's steady and healthy growth, the favor it has found among car owners of all degrees in all parts of the country, seem to us to be more convincing proof that we have fulfilled our mission.

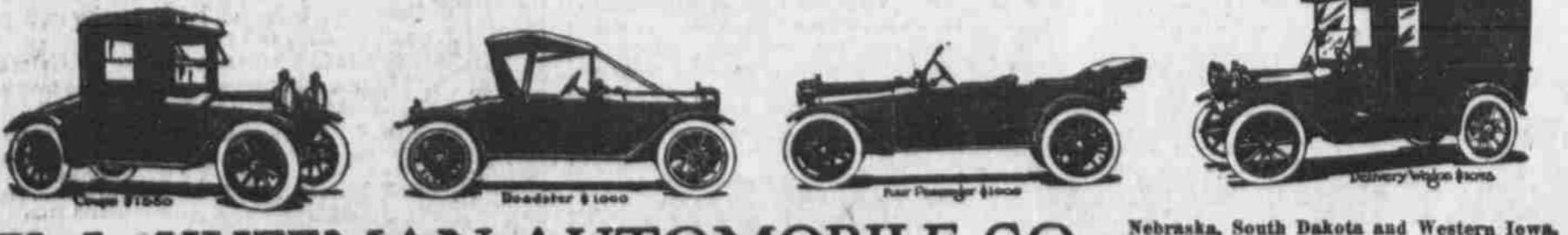
Build your summer plans around a Hupmobile. Give your loved ones such a summer as they have never known, with this sturdy Car of the American Family.

**Get a Demonstration Now**  
Let it be the center of your summer activities, aside from business—and even there you will find it a great comfort and convenience.

If you can afford any motor car, you can afford the Hupmobile. And you will find that no car—at any price—can give you more, save in bulk; but many at a like price, do give less than the Hupmobile.

The Hupmobile dealer will gladly demonstrate the car for you and your family. All you have to do is arrange the time. Do that now.

Hupp Motor Car Company, Detroit, Michigan.



## W. L. HUFFMAN AUTOMOBILE CO.

BRANCHES—222 SO. PHILLIPS AVE., SIOUX FALLS, S. D.; 527 DOUGLAS ST., SIOUX CITY, IOWA.

**RUBY PORTABLE STEEL BUILDINGS** for every purpose are fireproof, weather-tight, inexpensive, indestructible. The one best portable building made. Private garages, cottages, boat houses, storage houses, tool houses, work shops, engine houses, contractors' buildings, railway buildings, Vending Booths, etc.

Wanted, Agents for Nebraska and Iowa.

**W. G. TEMPLETON,** Special Representative, 310 Bee Bldg. Omaha, Neb.