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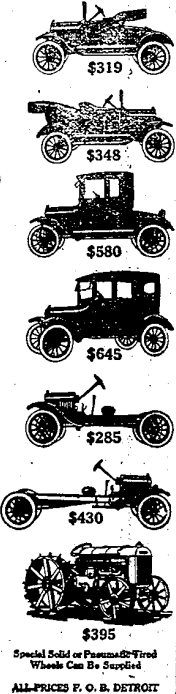
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## FIND BEST OILS ARE ECONOMICAL

Manufacturers for Years Have Called Attention to Importance of Lubrication.

### OWNERS DEPEND ON DEALERS

Inferior Article Decomposes Easily and Forms Large Quantities of Sediment and Carbon Residue—Wear Is Result.

Automobile manufacturers for years have been impressing on motorists the vast importance of correct lubrication for the maintenance of the internal combustion engine. Their study has been taken from an economical standpoint and in order to insure the long life of the motor.

A recent investigation in the oil market showed that a large percentage of automobile owners do not specify a particular brand when purchasing a lubricating oil, but depend entirely on the judgment and preference of the dealer. This fact makes possible the harmful practice of substitution of an inferior grade of oil, the price of a quality oil.

Educational Campaign. Feeling that there are definite steps which can be taken to eliminate this fact, the producers have inaugurated an educational advertising campaign by means of which the importance of correct lubrication is taken up step by step in a language which any layman can thoroughly understand.

Lubrication has become recognized as such an important factor that engineers have spent years of intense research to produce a lubricant which will maintain its body under the extreme heat generated in the motor, which varies from 150 to 1,000 degrees Fahrenheit, and to function properly under every possible condition.

Inferior Oil Wasteful. It has been found that an inferior lubricating oil very easily decomposes and forms large quantities of sediment and carbon residue which has no lubricating value and is therefore waste material. This sediment and carbon residue crowd out the good oil from the bearings and rapidly moving parts of the machine.

### You Auto Know

That one of the chief causes of automobile fires, especially during cool weather, is "backfiring," which, in turn, is due to the mixture not being sufficiently rich in gasoline. When the backfire occurs a sheet of flame leaps from the air intake of the carburetor, and if it strikes anything of an easily inflammable nature, a serious explosion or flame is likely to result.

The collection of gasoline upon the drip-pan is one of the principal dangers in this connection, for the gas vaporizes so rapidly that if the pan is not properly drained or cleaned at regular intervals, there is almost certain to be a sufficient mixture in the vicinity of the carburetor to cause trouble from backfire and the subsequent flame. The prevention of this risk, of course, lies in the frequent use of the choker in starting during cold weather, and also in keeping the drip-pan and the carburetor well cleaned, although fires have also been known to start from backfiring igniting pools of oil or grease on the floor of a garage. (Copyright, 1921, by The Wheeler Syndicate, Inc.)

### OVERCOME RATTLE OF DOORS

Effective Method Is That of Bending Hinge as Shown in Illustration Herewith.

The doors of many automobile bodies, particularly the light cars, loosen up after considerable running, and cause a disagreeable rattle. Rubber and nails, or strips of rubber cut from inner tubes, are frequently used to take up the play between the door and frame. A method that is more effective and requires a minimum of



A Simple Remedy for the Rattling of Automobile Doors Is to Bend the Hinges Slightly.

work is that of bending the hinge, as shown, using a wrench with a pin between the jaws to prevent marring the paint. The hinge so bent will assist in opening the door, the spring action swinging the door fully open when the catch is released. Popular Mechanics Magazine.

The Architect of St. Paul's. Sir Christopher Wren's salary was \$1,000 a year as architect of St. Paul's. He got only part of it in order to bury him to himself. He was dismissed after 40 years' service, when he was eighty-two.

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## RIGHT AIR PRESSURE IS QUITE NECESSARY

Overloading or Underinflation Increases Temperature.

Amount of Heat Generated by Tire Is Due to Friction and Loading of Fabric and Rubber—Old Tire Most Susceptible.

The heat that is noticeable in a tire after it has been run for a few hours is generated by the tire itself, due to friction of the fabric and rubber. The amount of heat depends upon the rapidly and extent of this action. An overloaded or an under-inflated tire heats more rapidly than a properly inflated and properly loaded tire. Similarly, a old tire, due to weakness, is more susceptible to this heat-producing action than a new tire.

The strength factor built into the standard pneumatic tire of today is far above what the tire is ever called upon to deliver, except under most extraordinary circumstances. Experimental tests have shown that in order to blow out a new first-class tire by additional air pressure, it is necessary to exert a force of over thirty times the regular recommended pressure.

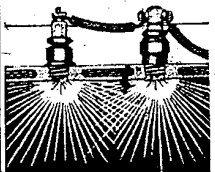
Tire experts claim, therefore, that there is absolutely no reason, so far as a blowout is concerned, for a reduction of air pressure before going out on long runs or during hot days. The maximum increase in air pressure that could be expected under any condition, would not exceed fifteen pounds—the average would not be greater than six pounds. This small increase in pressure will not blow out the tire.

The motorist should not concern himself over making inflation allowances for changes in temperature. The important point to remember is at all times to have enough pressure and that it is very rare that one has too much. Proper air pressure is necessary that full service may be received.

### SUPPLEMENTARY AUTO PLUGS

Purpose of Secondary Devices Is to Make Ignition More Certain and Help Combustion.

Secondary, or supplementary, spark plugs now on the market are designed to be inserted in the cylinder heads of an automobile engine alongside the regular plugs, the purpose being to



Supplementary Spark Plugs.

make ignition more certain and combustion more complete by providing two points in each cylinder at which sparking takes place simultaneously. The extra plug is connected directly with the regular plug and is so insulated that the current passes through it without being grounded. Popular Mechanics Magazine.

### You Auto Know

That some cars have a tendency to leak oil from the right-hand wheel housing, even when no excess of lubricant is apparent anywhere else. This is due to the fact that the right side of the car is usually at a lower level than the left, especially when driving along country roads when the chassis is designed to shed water into the ditches on either side. As a result of this leakage, the right-hand brake band is often covered with a thin film of oil which prevents it from functioning properly.

A simple remedy for this is to wrap a long strip of thin felt around the shaft, starting from the wheel end and working in a direction opposite to the forward motion of the wheel, covering the axle for a distance of about eight inches. The felt should be fastened to the shaft with shellac and held in place by cord, tied around it several times. When the shaft is turned, the effect of this is to force the oil back toward the differential and away from the brakes. (Copyright, 1921, by The Wheeler Syndicate, Inc.)

## AUTOMOBILE GOSIP

A new owner of an automobile, when searching for trouble, often creates more than he finds.

A carborator should not be adjusted until the engine is run until it has attained the heat it would normally develop on the road.

Go over the electrical system and see that all loose wires are fastened and loose connections attended to. Clean the battery and, if necessary, have it recharged to capacity.

## State Fair Cattle Barns Equipped for 1,000 Head

New Addition Will Make Department a Leader Says G. W. Dickinson.

A new addition to the cattle barn, providing ample facilities for housing 1,000 head, promises to make this department one of the predominating ones at the Michigan State Fair, Detroit, September 1 to 10, says George W. Dickinson, secretary and manager.



Albert E. Stevenson, of Port Huron, a member of the board of managers, will be the member in charge of the department. He has been associated with the Michigan State Fair for a number of years and at one time was general superintendent of the exposition.

Michigan is gaining a position of importance as a cattle raising state," declared Mr. Dickinson. "The best breeds are being grown extensively, but dairy cattle hold a greater place."

"This year Michigan farmers who attend the fair will have the opportunity of witnessing some fine outside beef which, it has been promised, will exhibit here."

"We regard as an important step forward in the fostering of cattle in

this state the erection of an addition to the cattle barns, facilitating the housing of 1,000 head of cattle. This, with the construction of our new coliseum, makes the cattle department a most important one."

Mr. Dickinson sees in community breeding a matter worthy of the attention of the farmer everywhere. He says community breeding makes it possible for a farmer and his neighbors to have the best sires obtainable. One farmer might not be able to afford a \$1,200 sire, but if six farmers in a neighborhood gave \$200 each, all would derive a \$1,200 benefit.

"Be careful in your cattle breeding. Be sure you know what you want before you breed your cattle. If you don't you may reduce the value of your cattle," warns Mr. Dickinson.

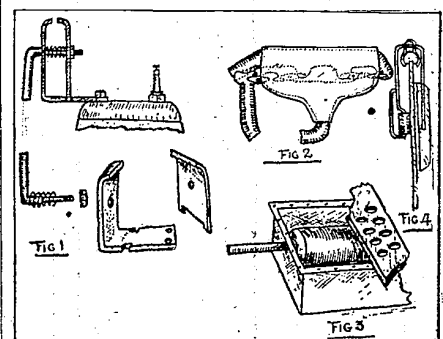
Mr. Dickinson says the state fair is encouraging the boys and girls clubs throughout the state to bring cattle to the exposition and many worthy awards have been promised.

J. A. Miller, of Swartz Creek, a member of the board of managers, will be in charge of the Swine department, with E. N. Bell, of Hamburg, superintendent, this year, Mr. Dickinson announced recently.

"The raising of hogs more and more is demanding the attention of the Michigan farmer," Mr. Dickinson claims. "The farmers' relation of the Detroit Board of Commerce has taken up this question with great vigor."

"It is pleasing to see the farmers forsake the pens for the alfalfa and to allow the swine green pasture. There is a marked improvement in quality and, this certainly will bring the farmer more money."

## LITTLE IMPROVEMENTS MAKE FARM AUTOMOBILE FAR MORE EFFICIENT



It is Combination of Many Small Things That Makes Up a Satisfactory and Complete Whole.

There always seems to be some improvement that can be made on the farm auto, no matter how well equipped the car may be. These improvements are often very small matters, but it is the combination of many small improvements that makes up a satisfactory and successful whole.

Fig. 1 shows an auto clamp vise. How often does the driver mechanic (who is, at the same time, the only one who can run the car both economically and efficiently), need a vise while away from the garage? Generally, through lack of one at the time, only a makeshift repair can be made and these often cause extra trouble afterwards when the car is in the garage.

The safety first motto applies to the tool kit as well as the driver, writes Arthur White in the Montreal Friday Herald. This kit should always be inspected before getting away with the car, especially if going any distance. The most satisfactory and the quickest way to check tools and materials is to make a list of the contents and affix it to the inside of tool box. It is an easy matter, then, to run over and check the items. This, too, is the only way to checkmate the tool borrowing fiend who pounces on your tools, borrows them and neglects to return them for weeks on end.

However, to return to the vise which is intended for light, small parts, holding them rigid while one is working on them. It is affixed to the engine and is held down by the engine head bolts. If these bolts are too short, it will be as well to secure longer ones, only taking care, when tightening them up, not to overstrain them, otherwise a broken stud results.

To make the vise two pieces of steel three-eighths or one-half inch will be needed. This is heated in the forge and then bent and formed as in the sketch, holes being drilled to fit the width of the shaft. The movable section of the vise has two rings filed out at the bottom. These are then fitted into slots which are cut in the fixed portion. The tightening screw is made from any piece of one-half-inch bar fixed up to pass through the holes in the vise. This also is heated and bent as shown. Afterwards a thread is cut, and a suitable nut fitted to it. Fig. 2 shows a method of heating the intake manifold from the exhaust manifold. This increases the efficiency of the gas in cold weather. The idea is to cover the entire manifold with a copper sheet, bending it well around each manifold and making it meet in the rear. This copper jacket is held in place by making holes through it to correspond with the bolts on the engine, slipping it over these bolts, setting the pipe clamps in place and finally tightening up the nuts as usual. The copper conducts the heat from the hot exhaust pipes direct to the intake manifold. After running the engine about ten minutes the intake becomes so hot that the hand cannot be held upon it; thus it preheats the gas, and so raises its explosive power. Fig. 3 shows another fitting for cold weather. This consists of a bakelite case for the muffler and is fastened to the underside of the floor. The casing can be made of sheet metal or even of wood. A number of holes should be bored through the floor of the car directly above this deflector; not so close or so numerous as to weaken the floor, of course, but sufficient to permit the heat, from around the exhaust muffler, escaping into the car. This excess heat usually is lost in radiation; but, by being diverted to the interior of the car, it will add greatly to the comfort of the occupants in winter. Another convenience when driving through snow or mist is a home-made windshield wiper. The very useful one shown in Fig. 4 is made of a piece of weather-strip (felt edge) mounted on a bent rod of spring wire. The clip is made of sheet metal fastened by means of a small bolt. On the other end of the wire, a small spool, with the flanges removed, is mounted. If the felt edge is saturated with equal parts of glycerin and alcohol it will coat the glass with an oily film, which tends to shed water.

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Have the Time. Leaders of men are seldom followers of fashion.—Boston Transcript.

Borneo Wedding Custom. At a Borneo marriage ceremony a young live hen is waved over and around the bride and bridegroom, after which it is killed. The blood is smeared on the forehead, chest, neck, hands and feet of the bride and groom.

Friend and Enemy. "A friend" said Uncle Eben, "tells you yob faults, but an enemy jollies you along into makin' em worse—an' more numerous."

Safety First. If the stenographer is middle-aged and plain it is a sign the wife is the habit of dropping in at the office once in a while.