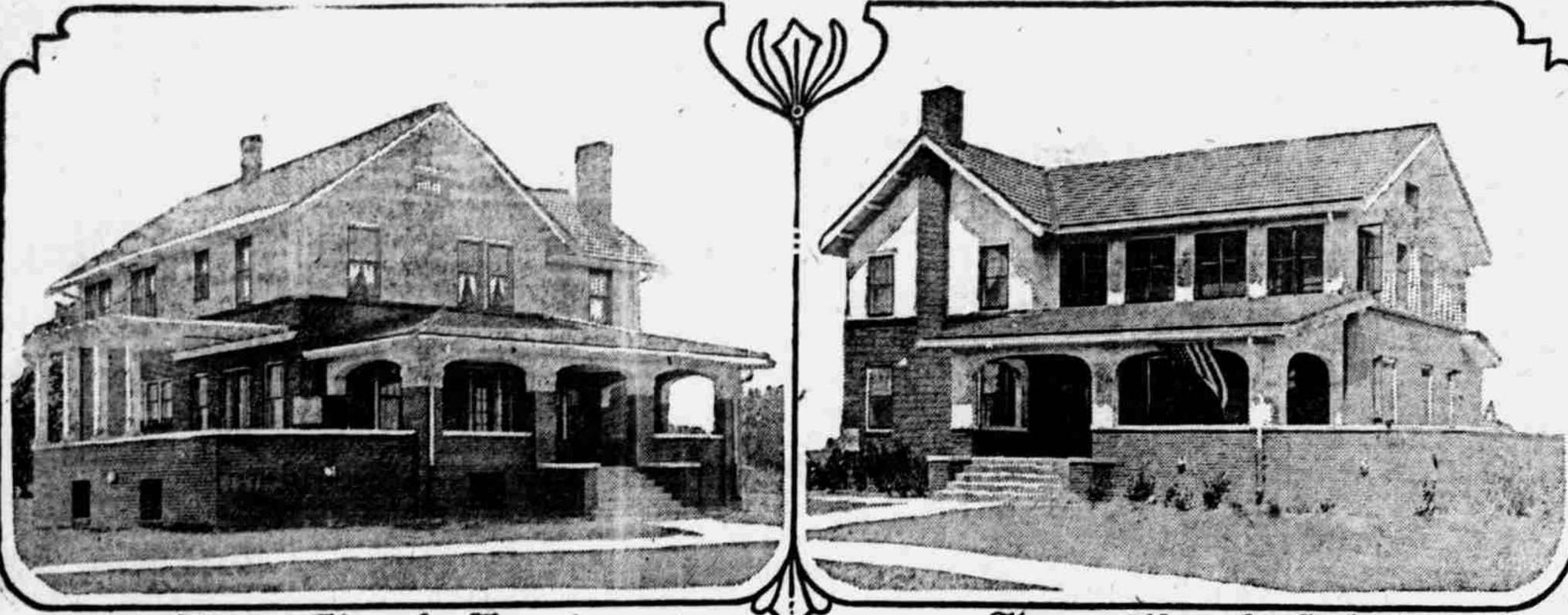


# Fremont is the Chosen Location of the Masonic Orphanages



Masonic Home for Boys (FREMONT)

Masonic Home for Girls (FREMONT)

## WHY AND WHEREFOR OF OILS AND OILING

### Reasons for Taking Care of All the Movable Parts of Machinery by Proper Lubrication.

Not long ago I chanced to be in a garage where a doctor was having his car tuned up a little. The mechanic noticed that his oil level was a little low and suggested that the doctor should have some more put in before long. He and those standing around were surprised to hear him say, "Don't you ever put any oil in my car unless it is some that I give you."

Upon inquiry I found that he uses a mineral medical oil which is prepared as a medicine and is so pure it can be used internally. By buying it in quantities and at wholesale he is able to get it for \$3 per gallon. Yet he says it is proving an economy to use it because his engine uses less than half as much of it as other engines do of common lubricating oil and because of his freedom from fouled spark plugs and carbonized cylinders.

### Best is Cheapest.

This doctor has learned one thing which every automobile owner should know, and that is the best is the cheapest in the long run. Of course, very few of us will start to use oil costing \$3 per gallon at wholesale, but we all will find it is real economy to buy only the best oil that we can for the purpose it is intended.

All oils which are at all suitable for use in automobiles or tractors, or, in fact, any piece of machinery, are mineral oils obtained from the distillation of petroleum. They will not dry and gum up in service and they will not break down and lose all their lubricating value when subjected to heat, as will all animal and vegetable oils and greases.

There are two classes of petroleum. One is a paraffine base oil and the other is an asphaltum base oil. This means that when all the gasoline and other oils are distilled off the residue from the first oil will be a paraffine, and from the second one would get a heavy, tarry oil called asphaltum.

There is a great deal of difference in the oils from these two kinds of petroleum, both in color and in the way they act in an engine. Even though a sample of oil of each kind may look identically alike, they will have different results when used in an engine. Some people maintain there is a difference in the gasoline from these two bases and that gasoline from a paraffine base which has the same gravity test as a gasoline from an asphaltum base will be more volatile and will give better results.

### How Carbon Forms.

The lubricating oil in a gas engine does not wear out; it burns up. Coming in contact with the intensely heated walls of the cylinder, part of the oil is vaporized and burned along with the vaporized fuel. The rest of it remains on the piston and the cylinder walls, where it becomes charred and forms a carbon deposit in the engine. The best lubricating oil for automobile, tractor or gas engine use is the one which will stand the greatest heat before it vaporizes and burns up and which will leave the least objectionable deposit in the engine.

The residue from an oil having a paraffine base will be softer and not so gummy as that from an oil with an asphaltum base. It will also be sooty and a great deal of it will be expelled from the engine with the exhaust, and thus it will not form a carbon deposit in the engine as fast as will the asphaltum oil.

The petroleum from different fields vary a great deal. Oils from the Pennsylvania fields and other eastern fields are almost entirely paraffine base oil. In the middle west, particularly in Kansas and Oklahoma, the petroleum obtained from different wells will differ greatly. Oftentimes asphaltum base petroleum and paraffine base petroleum will be found coming from the wells on neighboring farms. In the western fields, from Wyoming to California, the oil has an asphaltum base almost exclusively.

The supply of paraffine base oils is far below the demand, and for this reason much of the gas engine lubricating oil on the market, especially the cheaper grade, has an asphaltum base.

### Greases and Hard Oils.

But the engine oil itself is not the only lubricant needed for gas engines. The lubricant should be selected for the bearing it is to lubricate, so grease and hard oil must also be used. A cup grease or hard oil is a heavy oil which has been mixed with some heavy animal or vegetable grease and some fiber to give it the proper "body." The temperature at which it will melt and run depends upon the proportion of grease and fiber in it.

Heavy greases, as distinguished from hard oil, are the thicker oils which are obtained from the petro-

oil after the liquid oils have been removed. They seldom have any foreign matter in them, so they are more greasy in appearance than the hard oils and cup greases. They are softer and at the same time have greater lubricating properties, but unless the joints about a bearing or transmission are very tight they will work past them.

### Graphite.

The best known lubricant for places where it can be used is graphite. It will form a lubricating film over a bearing which will last a long time. Only one or two firms claim to have been able to put it in usable shape, however, so as yet it can only be taken apart easily and coated with the lubricant and reassembled. This, of course, means too much work for any place except bearings, which have very little motion as compared to the leaves of a spring.

### Why Oil is Necessary.

The purpose of lubrication is twofold. Primarily it is to reduce the friction where two pieces of a machine are rubbing together, but secondarily it serves to carry away some of the heat generated by the friction of those two pieces rubbing on each other.

In heavy high-speed machinery, such as automobile and tractor engines and power plant machinery, the second purpose is very important. For this reason the manufacturers of most of the high-speed gas engines build their engines with a reservoir in which oil is kept and from which it is pumped over and over into the engine. The cooling effect of a large body of oil is considerable, and some manufacturers have even gone so far as to flute the sides of the oil reservoir so it will remove the heat faster. If the two halves of a bearing could be made absolutely smooth there would be little need for lubrication, because there would be very little friction, but a perfectly smooth bearing is impossible to obtain. It might look and feel smooth, but when put under a high-powered microscope it would show numberless small holes. All metal is crystalline, and when it hardens it forms in minute crystals, each of which has a microscopic air space about it, and even the most carefully ground bearing will have these air spaces.

### Bearings Ride in Oil.

The purpose of the oil is to fill up these minute spaces and form a film of oil between the two parts of the bearing so that instead of rubbing on the bearing the shaft is actually riding on a film of oil which moves along with it and reduces the friction.

The best oil to use for any bearing is the lightest oil which can be obtained that will work into the bearing and maintain this film. The weight of the oil necessary will depend on the pressure on the bearing. If the oil is too light the pressure on the bearing will force it out and it cannot maintain this film of oil. Too heavy an oil will make the friction of a bearing greater than if the proper oil were used, and too light an oil will not stay in the bearing, so it will be very little better than no oil at all.

From this one would think that a different oil should be used for every bearing, but that would be carrying the point too far. The oil which is suitable for most of the bearings will do for all. The manufacturer of the machine is always ready to advise what weight this oil should be.

### Economical Oiling.

The ideal way to lubricate and the most economical is to supply it with a steady stream of oil in just the right amount to lubricate it properly. This would mean that the oil would only be used once, but that it would be used up and there would be no waste.

Such a lubricating system is very nearly impossible; so many machines, especially high-speed machines, such as gas engines and electric motors, are provided with an oil reservoir and the bearings are enclosed. Then the oil is either pumped or splashed over the bearings and the surplus is allowed to fall back into the reservoir, where it will be used again.

On a machine so equipped the only precaution which needs to be taken is to keep the oil level in the reservoir above a certain point. There are a great many machines, however, on which such a lubricating system could not be used and they must be oiled by hand at frequent intervals. All classes of farm machinery have many such bearings and they are the ones which so often suffer from lack of oil.

When oil is put on such a bearing, only a certain small amount will stay on the bearing; the rest runs off and is wasted. To put on a lot of oil, thinking it will last half a day, is a mistake. The men who are getting years of service from their farm machinery are men who stop once or twice every round of the field, or at least twice an hour, and go over their machine with an oil can.

Oil is affected by temperature. Heat will cause it to become more fluid and cold will make it thicker. One must take this into consideration when buying oil and get an oil for winter use which will be light enough to flow in cold weather. Then when hot weather comes he will want a heavier oil.

Much has been written about oils and everyone advises against an ani-

mal or vegetable oil for most forms of lubricating, yet one often sees it used. A poor oil is an unnecessary expense, even though it is cheap. The money saved on the oil will be more than spent in paying for repairs and time for cleaning up bearings, which would be unnecessary if the proper high-grade oil was used.

### Circus Torch and Kerosene - Give Way to Delco Light

The circus torch and the kerosene burner have given way to electricity, according to C. E. Wagner, distributor for the Delco light.

No less than six of the larger circuses traveling the country have portable Delco plants, which are used for lighting the railroad yards and grounds for unloading and preliminary work.

Barnum & Bailey had five portable Delco light plants with them which were used in Omaha during the show last week. The circus management has found the electric light plants extremely convenient and inexpensive.

### True Tractor Tales

Last fall I drove to Meadow Grove with a wagon and a big rack containing thirteen head of hogs that weighed about 300 pounds each; then I had another wagon attached behind that with six hogs in it about the same weight. I drove ten miles with these hogs in about two and three-quarter hours. There were four teams behind hauling hogs, and I got into town ahead of all of them.

I plowed about 100 acres in the spring and a little over 100 acres since harvest, using three fourteen-inch plows and plowing seven inches deep. I plowed over one hill in my field that was less than one-fourth-mile long, with a raise of sixty feet in going this distance. The tractor pulled the three fourteen-inch plows right up this hill, plowing seven inches deep.

I ran my threshing machine after harvest last year and ran a 28-36 separator with it, complete with blower and feeder and have earned \$410 with it threshing after doing my own work.

I threshed as high as 600 bushels of wheat in one day, and one day we were just trying to see what we could do, for fun, and threshed 440 bushels of oats in two hours.

I stacked all my hay with my tractor and never used a team. The tractor is the best thing you can get to put on the end of a rope to pull the stacker up. You can go as fast or as slow as you please, and stop it whenever you want it, and it will hold the load where you stop.

I have been into some pretty bad mud holes, but have never been into one with my tractor that it did not pull itself out. I pulled 108 bushels of rye ten miles to town when the roads were so muddy that in many cases the tractor went into the mud eight inches, but the tractor went right along. I also ran a feed mill with it and ground fifty bushels of rye in fifty-five minutes. I certainly would not be without a tractor.—M. R. Duhachek, Madison County, Nebraska.

Mr. Charles Warner of Lancaster county, Nebraska, has been using a 30-60 engine for the last four years.

This engine has been used to plow, seed and thresh.

Due to the crowded conditions of getting in a great deal of corn this year on wheat ground, Mr. Warner pulled four lister bottoms with his tractor. This worked out very nicely and he was able to get the ground planted early. This would not have been possible had he depended entirely upon horses, since there were about 400 acres planted.

I like my rig mighty well; have threshed over 28,000 bushels of oats and a little over 5,000 bushels of wheat last season, and did it all in just twenty-one days, but the fields are awful small; it not being a small grain country, the fields are from ten to fifty acres. Threshed what a person could call one good, steady day in one field of ninety acres; threshed 2,500 bushels of oats and 300 bushels of wheat, making just 3,000 bushels that day. That was my best last year, but if I could have had bigger fields could have done a

lot better, for I lost so much time on the road.

The engine ran just fine; couldn't be better. I burn about sixty gallons of kerosene and all are well satisfied, and think we will have some more in the near future, as they are making a big hit with the people of Washington county, Nebraska.—L. R. Hammand, Washington County, Nebraska. kerosene in a day; that is, a good, long day. Can operate my rig cheaper than they can a steam rig, for it takes three men to operate a steam rig, and can run this one by myself.

Just finished up a job of plowing in the hills. My tractor pulls eight fourteen-inch plows nine inches deep on sixty gallons of kerosene a day and does its work with ease.

We have several tractors in this country and all are well satisfied, and think we will have some more in the near future, as they are making a big hit with the people of Washington county, Nebraska.—L. R. Hammand, Washington County, Nebraska.

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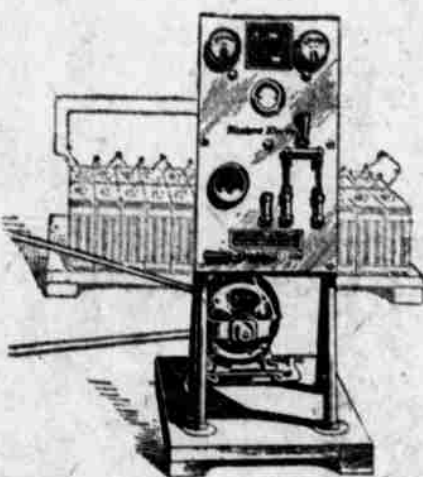
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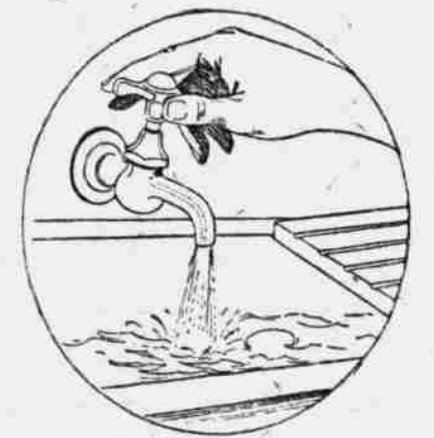
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