CARE OF BEARINGS SPELLS ECONOMY

Automobile Owners Too Often Fail to Give Them Proper Attention.

FEW EXPERT SUGGESTIONS

Without ball or roller bearings the automobile would be a sadly crippled vehicle. It is safe to say that you know less about them than any other important mechanical feature of the car, and this perhaps is the best testimonial of their serviceability. You are familiar with the carbureter because it occasionally gives trouble; you can change tires because you frequently have to, but you overlook the importance of the bearings because they are well behaved.

You know that there are two kinds of bearings—the plain bearing and the anti-friction bearing. The plain bearing has been used for years, you are familiar with it in machines of all kinds, and you have seen it on the wheels of the big locomotives. If it is good enough for the steam locomotive why is it not satisfactory for use in any part of the automobile?

If you have ever noticed how careful the engineer is to oil these bearings at frequent intervals you have partly answered the question, according to Charles Hammond in Motor Life. Would you like to stop ever few hours and lubricate the front and rear wheel axles? That is what you would have to do, because plain bearings demand constant lubrication. This is because the rotating shaft does not bear directly against the soft bearing metal, but is separated from it by a thin film of oil which must be constantly maintained in order to keep the metal from wearing away rapidly. The crankshaft bearings are of this type, and you know that in spite of the fact that they are constantly automatically lubricated, they wear out rapidly and allow play enough for knocks and thumps to develop in the engine.

The second kind of bearing is the anti-friction type, in which the shaft is in rolling contact with the bearing, and in which friction is greatly reduced. To understand the difference between rolling and sliding friction, place a book flat on the table and push it over the surface. Now, place pencils under the book and, of course, you can move it over the top of the table with much less effort. This is the principle of the roller bearing, in which the rollers, corresponding to the pencil, are arranged around the circumference of the shaft.

Care for Two Forces.

There are two forces which the bearings must take care of at certain points in the car. If you push down on the book the rollers or balls can take care of the load, but suppose you push against the edge of the book. The book simply slides off of the rollers, and the only thing to do is to place another set of rollers against the edge of the book at right angles to the table. This is just what is done in many cases, and the force which acts along the axis of the shaft is taken up by an end thrust bearing. The tapered roller bearing is designed to take care of both of these loads. In principle it is much the same as the cork in a bottle. You can rotate the cork, but pressure behind it will not force it inside. In the roller bearing of this type provision has also been made for taking care of a certain amount of end thrust.

In the hubs of the front wheels bearings are subjected to a greater strain than in any other place in the car. Here they carry the weight of the car over bumps and in ruts. In turning a corner the end thrust mentioned above makes a second force with which to contend. This is the force which throws you toward the outer edge of the seat when the car rounds a curve, and it adds greatly to the burden which the bearings must carry.

In the rear wheels more than half of the weight of the car is carried by the bearings. If the car strikes a stone or drops into a rut the load is greatly intensified, and, although springs and cushions protect the passenger, the full force of the blow is transmitted to the wheel bearings. It is important that these bearings be rugged enough to resist the wear and tear of the hard service which fall to their lot, for as soon as wear becomes noticeable and the wheel begins to wabble, you can feel certain that miles are being clipped from the life of the tires.

In the engine, bearings are used in conection with the fan shaft, the clutch and starting motor, the magneto or generator and the steering gear. These bearings are subject to little or no shock, and usually outlive the car, demanding only occasional inspection and lubrication. The crankshaft is in some instances supported by ball bearings, but this practice is by no means common, and since ample lubrication is possible at this point the plain friction bearing continues to be used.

Lubrication Important.

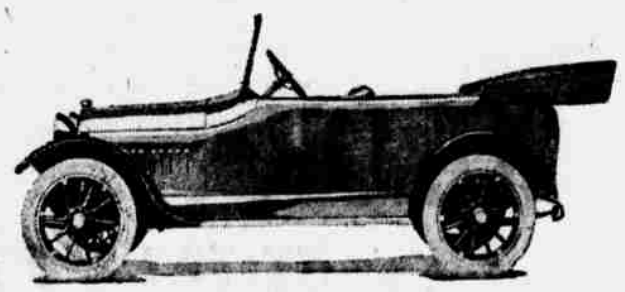
Anti-friction bearings are indispensable in the transmission and the differential. In the transmission they perform the important function of keeping the shafts in use so that the gears slide smoothly in and out of mesh and run without noise. In the differential they have an added duty to perform. Power from the engine is transmitted to the rear axle by means of a driving pinion. The pressure between the teeth of the pinion and the large gear with which it meshes gives the pinion a tendency to climb on the teeth of the gear, and the bearing must take all the strain of keeping it in place.

With the exception of the tapered roller-bearing, anti-friction bearings are not adjustable, and require replacement or regrinding when worn out. Because of the important positions which they occupy in the car it is imperative that replacement be made as soon as wear has become evident, but if the car has been properly equipped the bearings will last several seasons. Occasional inspection is necessary, and, of course, any noise which originates in the bearings demands immediate attention.

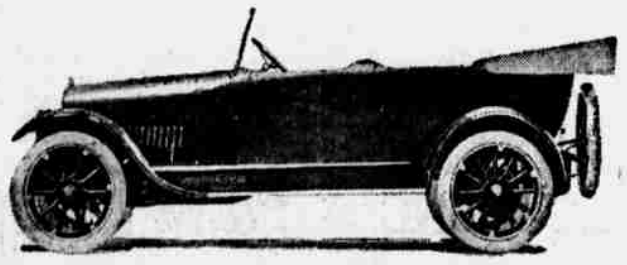
There appears to be an erroneous belief that ball or roller bearings require no lubrication, and that they operate just as well when dry. Such a belief is far from the truth. Oil or grease is not only necessary as a lubricant, but also as a protective agent to prevent rust, and by surrounding the bearing to prevent the entrance of dust or grit. Only the best mineral oil or light grease should be used for this purpose. Contrary to the general opinion, graphite in grease, even though finely pulverized, causes the bearing to wear out more rapidly and does not improve the running qualities of the bearing or reduce the friction.—New York Herald.

Packard Single Compartment Brougham

Velie Biltwell Six



Chandler Light Six Type



HEAD OF OMAHA CHANDLER COMPANY.

MEYN PHOTO

R. R. McNEMAR

R. R. McNamar, who has recently taken over the interests of Gus Bolton of the Omaha Chandler company, has made a very careful estimate of the possibilities in Omaha and its immediate vicinity so far as selling motor cars in concerned. Mr. McNamar was very much surprised at the lack of attention paid to Omaha prospects for motor cars. In his opinion the Omaha field has been overlooked to a considerable extent. The fact, states Mr. McNamar, that Omaha is primarily a wholesale or jobbing point for automobiles has led a great many of the dealers to overlook the local territory in the interest of their wholesale business. The Chandler, Mr. McNamar feels, should be an excellent city seller as well as a car for the rural districts. The lines of the car are extremely refined and the appointments designed in tasteful harmony. With these ideas in mind, Mr. McNamar has decided to make a very substantial effort in the local field.

MOTOR STOPS AT RAILROAD CROSSING

Discussion of Existing Dangers and Plans for Reducing Accidents.

DRAFT OF MODEL LAW

When shall an operator of a motor vehicle be compelled to come to a full stop at a railroad crossing at grade? This question was considered at length in the recent conference at Washington, participated in by representatives of the National Association of Railway Commissioners, the American Automobile Association and the American Railway Association.

The meeting had for its purpose the countrywide adoption of a uniform system of signals and other precautionary measures, it being set forth that "one sign should signify the same thing everywhere, installed so as to be in plain view of the driver of a vehicle and so that it could be plainly read at night by automobile headlights."

Unanimity existed as to the type of first warning sign to be erected by city, town or county, and also that it should be located not less than 300 feet from a crossing. But the full stop proposition came in for much discussion. Osborne I. Yellott, chairman of the American Automobile Legislative Board, thus presents the contention of the motorists:

"It was recognized by the American Automobile association representatives, who included H. M. Rowe, president, that while the number of accidents at grade crossings was almost infinitesimally small in comparison with the number of such crossings made safely by motorists in the course of a year, nevertheless some steps should be taken to reduce accidents to the smallest possible degree. Two propositions were suggested by the spokesman of the railroads, the first providing that within 100 feet of the crossing the motor vehicle should not proceed at a rate of speed greater than ten miles an hour, and the second that the motor vehicle should be brought to a full stop not less than ten feet from the nearest rail of the crossing.

Meet With Objections.

"The first suggestion was objected to on the ground that it was unreasonable and would tend to give rise to the maintenance of obnoxious speed traps at such crossings, with resulting inconvenience and injustice to many motorists who were, in fact, exercising all proper caution in approaching the crossings in question. The second was objected to mainly on the ground that it was unreasonable to require motorists to stop at all crossings regardless, since in many instances the tracks in either direction are visible for such distances as to make stopping entirely unnecessary.

"It was finally agreed that motorists should be required to reduce speed and proceed cautiously at all crossings, and that the Public Service commissions or railroad commissions of the several states should have the power to determine the crossing at which it was reasonably necessary that stops be made; such full stop crossings to be designated by appropriate signs, and the failure of a motorist to stop at such to be prima facie evidence that he had not proceeded cautiously in making such crossing.

"In making this latter concession the representatives of the motorists realized that there are some grade crossings at which ordinary prudence requires a full stop, and that inasmuch as conditions vary so much at this class of crossing it would be better to leave the determination of such to responsible bodies such as Public Service commissions."

Speaking for the motorists' organization, Mr. Yellott infers that the full stop proposal will be combated, except under the arrangement which he sets forth.—New York Herald.

English Owners Hard Up For Parts for Machines

British users of American-made automobiles are in difficulties over the replacement of parts when damaged or sufficiently worn to require renewal, according to the London Telegraph. The reason is that no importation of foreign motor car parts is permitted except for government vehicles. It has been estimated by the agents of American manufacturers trading in Great Britain that the amount of extra parts necessary to be imported for private owners would be about 500 tons per annum.