

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 carburetor 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.

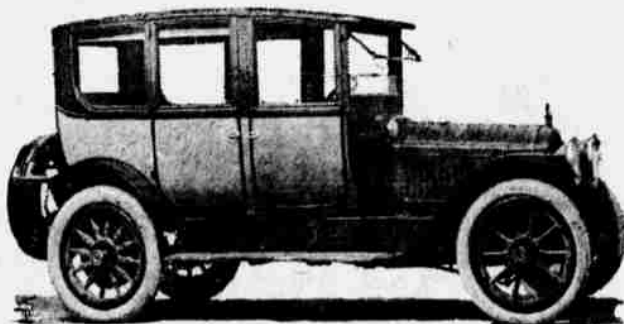
You know that there are two kinds of bearings—the plain bearing and the anti-friction bearing. The plain bearing has been used for years, you are familiar with it in machines of all kinds, and you have seen it in the wheels of the big locomotives. If it is good enough for the steam locomotive why is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

If you have ever noticed how carefully 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.

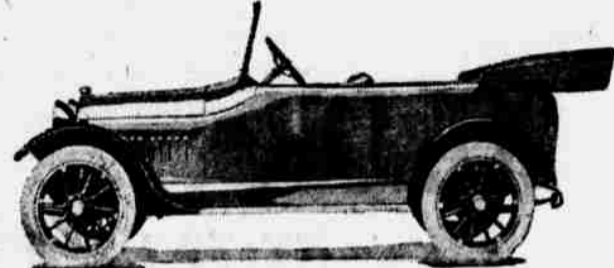
The second kind of bearing is the anti-friction type, in which the shaft is in rolling contact with the bearing, and in which friction is greatly reduced. To understand the difference between rolling and sliding friction, place a book flat on the table and push it over the surface. Now, place pencils 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 pencils, are arranged around the circumference of the shaft.

Care for Two Forces. There are two forces which the bearings must take care of at cer-

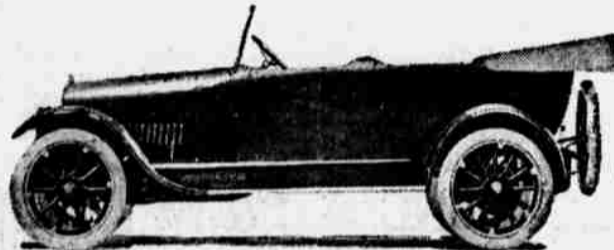
Packard Single Compartment Brougham



Velie Biltwell Six



Chandler Light Six Type



tain 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 bear-

ing 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 wobble, you can feel certain that miles are being clipped from the life of the tires.

In the engine, bearings are used in connection 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.

HEAD OF OMAHA CHANDLER COMPANY.



REYN PHOTO R. R. MCNAMAR

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 railroad, 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.

Good Value—Always Growing Greater

As the improvements are made in Dodge Brothers car nothing is said to Dodge Brothers dealers, or to the public, about them.

This is in pursuance of a policy inaugurated by Dodge Brothers at the very outset.

They look upon the progressive improvement of the car as a matter of course.

It is a plain duty they owe to themselves and to the public.

There is no necessity of heralding these improvements in advance.

The public finds out about them in due time, and expresses appreciation and approval.

And so, while the process of betterment goes on every day, nothing is said of it until after it is accomplished.

The car is basically the same car as it was two years ago.

Yet there isn't a bit of doubt but that it is a better car.

The car of today is worth more money than the car of two years ago.

The price is the same, but the car is a better car.

Not because the costs of materials have increased—although they have.

But especially because the standards of construction have been steadily raised—the shop practice made steadily finer.

And still, the buyers of the first cars, and every subsequent car, received full value.

That is proven by the fact that all of the cars, no matter how long ago they were built, are giving good service today.

It is still further proven by the high price they command when sold at second hand.

Any car built by Dodge Brothers commands a high price—whether it was built twenty-two months, or twelve months, or two months ago.

This high valuation on any car bearing Dodge Brothers name, has been fixed, not by them, but by the public.

Dodge Brothers have had few market problems to bother them, and practically nothing to do but make the car better.

They are their own severest critics, and they will never wait for the public to ask for a better car from them.

They try to anticipate—to travel ahead—to give even more than is expected.

No material, no part, and no accessory is barred from Dodge Brothers car because it is too high priced.

The only question asked, the only proof demanded, is of its goodness.

When the car was designed, its parts were charted and chosen according to quality, and with a total disregard of price.

That policy still prevails, only it has been intensified.

No source of supply can have too high a standard for Dodge Brothers—nothing too good can be offered for Dodge Brothers car.

That policy, plus a process of research, test, refinement and proof, make for continuous progress.

That is why it is still the same car, and yet a much finer car.

That is why it is worth more money than ever, though still sold at the same price.

That is why its value is always growing greater.

It will be well worth your while to examine this car at the show

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touring Car or Roadster, \$185; Sedan, \$115
 Winter Touring Car or Roadster, \$225

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DOES THAT SOUND flippant? We assure you we do not mean it so. Nor is it far-fetched by any means.

IN TRUTH we do not know of anyone who owns one of every Reo model, but we could name several who own as many as four or more Reos of different types.

IT ISN'T UNCOMMON to find business men who own both 2-Ton and 1/2-Ton Reo trucks, and one or more Reo pleasure cars as well.

AND IT ISN'T DIFFICULT to think of many who might profitably own even more of every model.

ONE THING IS SURE: You find more Reo models in the same owner's garage than of any other make.

THAT'S BECAUSE once a man owns a Reo he is "sold" on Reo quality, Reo dependability, and Reo low cost of upkeep.

SO WHEN HE DOES need another car or truck, either smaller or larger than the one he has, first thing he does is to find out whether Reo makes such an one.

"50 PER CENT OVERSIZE" in all vital parts, the Reo standard factor of safety, is in all Reos—look them over at the show.

LET A REO MAN go over the stripped "cut out" chassis with you.

THEN YOU'LL KNOW why Reos are so reliable and so almost unbelievably economical in upkeep.

NOT THE CHEAPEST to buy—but the cheapest to own—that is the Reo slogan.

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