

NEW DEPARTURE TWO-IN-ONE BALL-BEARING.

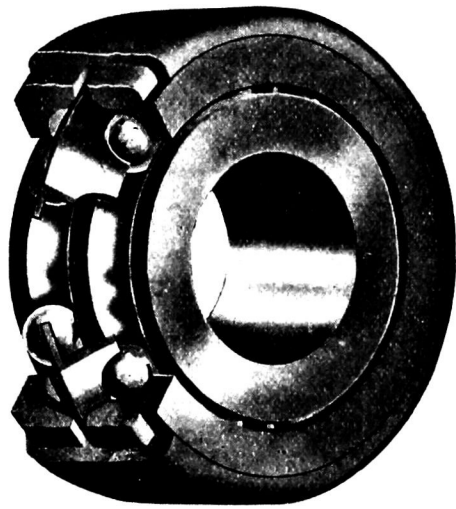
There are few places on the automobile where improvement has not been brought about by the substitution of an anti-friction type of bearing for the plain types formerly employed, but there are likewise few places on a car where the problem has not



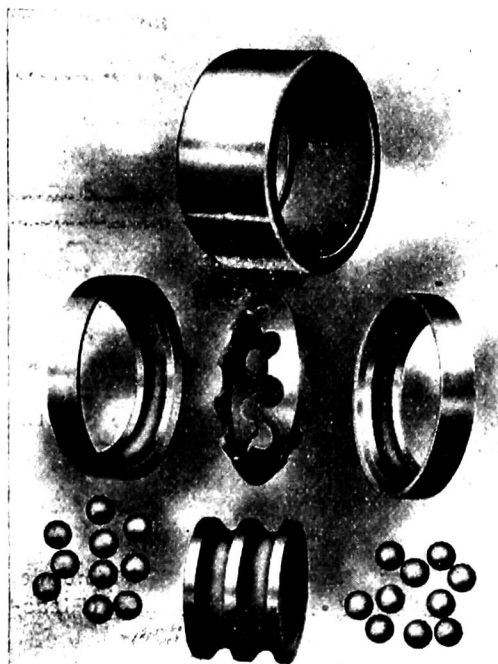
Assembled Bearing Complete.

been complicated to greater or less extent by the fact that both thrust as well as radial loads have had to be carried. The front wheel hubs, for instance, where the thrust load not only frequently equals the radial pressure on the bearing, but sometimes exceeds it. The bevel gear drive, differential, and gear-set also afford instances where the requirements call for a bearing capable of sustaining a thrust load that is often practically the equivalent of its radial carrying capacity. The New Departure Manufacturing Company, Bristol, Conn., has been devoting its efforts to the development of a ball-bearing that would be capable of not only sustaining equal thrust and radial loads, but which would be capable of bearing greater loads for its size, and the result has taken the form of the New Departure "two-in-one" annular ball-bearing, which first made its appearance on the market early in the year.

While especially adapted to automobile use, owing to its dual ability as expressed by its title, it has also been designed for general use and has already found numerous applications in special machinery and for power transmission. Its value in automobile work would arise from its ability to withstand radial or thrust loads, or any combination of the two, with the use of but a single bearing with its attendant simplicity of mounting. In order to bring about this result, two rows of balls are employed in staggered relation to one another, and the ball races are so arranged that the line of pressure is either at an angle of 45 degrees or 60 degrees with the horizontal, when the axis of rotation of the bearing is in a horizontal plane. The makers claim this has been accomplished without departing from that simplicity which characterizes the usual type, and that is evident from the fact that exclusive of the balls there are but five parts to the complete bearing, and



Sectional View of Bearing.



The Various Separate Parts.

when the latter is assembled these are permanently combined, making the bearing self-contained.

These parts, in the order of their assembly from the shaft outward, are the cone, the separator, the two cups and the shell, the order in which they are named being illustrated by the cut showing the dismounted bearing, while their relative positions are shown in the cross-sectional view of the bearing. From this it will be evident that the line of pressure of the cone, cups, and balls makes an angle of 45 degrees with the horizontal, something which is equally true of both rows of balls, this feature adapting the bearing to withstand a load from any angle, while the additional row of balls is said to increase its capacity one and one-half times. Two semi-circular races are turned in the cone to receive the balls, while the sheet steel separator is so stamped that the ball retaining notches are staggered with reference to each other. These openings are made slightly larger than the ball diameter, so that the contact between the ball and separator is said to be a point contact at one end of the axis of rotation, while the weight by separator is carried on the balls at the top of the bearing. By maintaining the relative positions of the balls at all times, cross friction is claimed to be entirely eliminated, while the friction introduced by the use of the separator is practically a negligible quantity. One of the most radical departures in the construction of this bearing is its permanent assembly, sufficient metal being provided in the shell to permit of drawing the latter tightly over the cups; this, the makers claim, absolutely maintains the relationship of every part of the bearing. And they are so perfectly confident of the status of every bearing that leaves their works that this is an advantage in many ways. A large range of sizes is now being manufactured, for which standard dimensions of bore and outside diameter have been adopted.

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LICENSED STATUS OF THE E-M-F SETTLED.

Ever since the formation of the Everitt-Metzger-Flanders Company, of Detroit, there has been more or less confusion regarding the status of the Northern Motor Car Company, as well as of the relation of the new company to the licensed association. The Northern Manufacturing Company joined the A. L. A. M., April, 1903, later changing its title by amendment to its charter to that given above, and this corporation sought permission to assign its license under the Selden patent, which carries with it membership in the Licensed Association, to the new E-M-F Company. This permission has just been granted, and the transfer includes all the business of the Northern company. While this winds up the existence of the latter as a factor in the automobile industry, former purchasers of Northern cars will be cared for by the new company.

When seen at the Association headquarters, Mr. Metzger said that the formal transfer of the property had been completed, and the work of organizing the factory forces of the new company was so well advanced that he felt confident the 10,000 cars the company had planned for would be completed in time for delivery during the coming season.

The officers of the E-M-F Company are: President, Byron Everitt; general manager, Walter E. Flanders; treasurer, Charles Palms; secretary and general sales manager, William E. Metzger.

SHAWMUT PLANT SUCCUMBS TO FLAMES.

BOSTON, Nov. 13.—The plant of the Shawmut Motor Company in the suburban town of Stoneham was destroyed by a fire which started in the factory building early this morning. It was discovered by the night watchman, but so rapidly did the flames spread over the oil-soaked floors that the combined efforts of the local fire department and companies from the surrounding places of Winchester, Wakefield, Melrose, and Woburn, could not stop its headway, and besides burning the Shawmut plant it consumed three tenement houses and narrowly missed a church. In the factory were ten finished cars and others in process.