

VALVE MOTOR OF KNIGHT IS IN BIG FAVOR

European Tendency in Modern Car Design Stresses Small Dimensions and Increased Power Development.

"With the recent agitation of the European tendency in modern motor car design, stressing smaller motor dimensions and increased power development, has come a desire on the part of the motoring public to know what really is ahead," says Charles Y. Knight, one of the leading inventive engineers in the motor car industry, and creator of the Knight sleeve valve motor.

"There is much in European design which we can follow in this country. Both America and Europe are shaping their plans to reduce the complication present in the majority of motors as they are built today.

"Scientific study has shown many places where the reduction of parts could easily be made, provided the attitude of the engineer toward giving up old practices and ideas is right and flexible.

"Fewer parts means less necessity for adjustments, long life, smoother operation and greater real efficiency. Every unnecessary part, or every part which could be eliminated through a change in design, is a dampener on the real maximum in mechanical ability and excellence.

"Old lubrication systems required individual slight feeds for each part covered by the oiling system. Old timers in the business can remember a dozen slight feed cups on the dash. Now a single oil gauge tells the story.

"Cylinders cast singly have given way to the mono-block motor with a great increase in general satisfaction.

"Today, one real question is that of valves. The valves are the controls on the arteries and veins of the motor. One opens up the way for the passage of the fresh gases to give power to the engine, the other opens up the way for the elimination of the dead gases to make way for a new and fresh load. The simpler the operation of the valves can be made, the greater the silence and efficiency of the power plant.

"The goal of every engineer is to eliminate valve noises, valve adjustments, and to overcome any natural tendencies in valve construction to hamper the operation of the motor at any speed.

"The original development of the Knight sleeve valve motor came as the result of a careful study of valve operation. The purpose of the motor was to eliminate valve clatter, to reduce valve mechanism and to increase the efficiency and life of the motor.

"The principle of two sleeves, operating inside the cylinder walls, to control the inlet and outlet of the

Many Stolen Autos Recovered

More than 10,000 stolen cars have been recovered by the United States department of justice since the passage of the Dyer act of 1919, according to the theft bureau of the California State Automobile association. A drive to break up interstate automobile thievery has recently been instituted by Attorney General Sargent.

Cars recovered in the six years were valued at \$5,845,539. Seattle, Wash., topped the list of recoveries, with 922.

Long prison sentences have been imposed upon many of the thieves. Cases seemed a logical solution of many of the problems confronting the designing engineer.

"These sleeves eliminated the necessity for using stems, push rods, cam shafts and valve springs. A considerable number of parts were automatically eliminated. They furnished an opportunity to carry the valves or ports in the sleeves themselves, and the operation of the sleeves was a simple matter. It required but two connecting rods, one for each sleeve in the cylinder, and these were easily operated by an eccentric shaft.

"Since the connecting rods were in constant and uniform motion at any given rate of motor speed, a highly desirable simplicity in operation was assured.

"The original principle has never been changed. It has been developed and improved constructionally by such manufacturers as Daimler-Knight of England, who were the first to build the Knight sleeve valve motor commercially, by Willys-Overland and by Sterns-Knight in this country, and later by Mercedes, Minerva, Voisin and Panhard in Europe.

"As general use of this type of motor on the part of the motor public built up the sources of information from which engineers could determine the efficiency of this type of construction, it was learned that not only did the sleeve valve principle do away with all the usual valve problems, but that the operation of the motor was such that even the usual carbon difficulties were eliminated and the life of the motor materially lengthened.

"The power development of the Knight sleeve valve motor as it is now being built, the truly exceptional life which these motors have shown, and the fact that nothing else has yet been developed which approaches this form of construction in simplicity, has attracted the attention not alone of the engineering world, but of the tremendous army of motor car users in steadily increasing numbers.

"It has permitted the engineer to make steady progress in a straight line, on one type of mechanism, without forcing him to step this way and that, to find some relief from a form of construction, which, inherently, offers many unnecessary complications."

KEEP FOOT OFF CLUTCH

Keep the foot flat on the floorboard unless actually shifting gears or slowing quickly to a stop.

All-Steel Body Proving Boon to Best Made Cars

Ed Dunham, Local Dealer for the Studebaker, Says This Applies Particularly to Enclosed Cars.

"Much attention has been given by automobile manufacturers recently in the construction of bodies, and particularly the closed car type of body, with a trend toward the all steel body, in an effort to minimize the 'danger' spots by narrowing down the upright supports to increase visibility and at the same time retain the strength and safety which has characterized the merit of the well constructed wood body," states Ed Dunham, local Studebaker distributor.

"Steel construction has permitted the narrowing down of the upright pillars without impairing strength and sturdiness of the top, which naturally increases the visibility for the driver and the passengers in the car. But in some cases the steel body has met with objections, due to the reverberation or rattle caused by road shock. Also under some methods of construction there was found that squeaks and rattles developed that proved hard to eliminate.

Combines Both Types

"All of these points were thoroughly analyzed by the Studebaker factory in the development of its new type of body which is now featured on the new custom sedans, which were recently announced. In designing these new bodies the best features of the wood and the steel bodies were considered, with the result that a combination of steel, reinforced by wood, was decided upon as the ideal construction.

"The steel construction of the new bodies gives visibility and safety. Wood sills and top rails and steel uprights reinforced by wood is the medium of eliminating the squeaks and rattles and the rattle that has proven an objection with the all-steel body. The wood is used to deaden the sound, and an extra precaution has been taken by inserting a cushion of felt between the contact of metal and wood.

Rigid Test

"There are no rivets or bolts in Studebaker body construction, but each vital part is electrically welded, which makes it practically as strong as the steel itself. This welding is given the most rigorous test before it is passed as being perfect for use on the automobile. The bottom of the assembly is held absolutely rigid while a machine moves the top back and forth through a space of about an inch, in an effort to break the welding. The assembly receives 150,000 oscillations of this kind before it is accepted.

"This type of body construction has resulted in a body of lighter weight, yet the maximum of strength and safety has been maintained and greater visibility for those riding in the car. These new bodies are a distinctive advancement in the development of motor car bodies, and they are built complete in Studebaker's own body plant."

Hits Five Homers In One Afternoon



Central Press Photo
Frank "Red" Partain of the Brownsville club in the Lower Rio Valley Baseball League of Texas recently broke all baseball records by getting five home runs in one game. The bank accounts of Partain's two little daughters took a big jump that day, Partain donating all "tips" from the fans to their educational fund.

Vice-President of Oakland Starts on Third Year Service

Charles W. Mathewson this month begins his third year as vice-president and director of sales of the Oakland Motor Car company. In addition to his duties as assistant to the president of the General Motors corporation, according to word just received from the Oakland Motor Car company by the R. H. H. garage, dealers in this territory for the Oakland and Pontiac lines.

Mathewson for the last twenty years has been one of the outstanding figures in the motor car industry. During the last ten years previous to his appointment at Oakland he was connected with Dodge Brothers as sales executive, serving in the capacity of general sales manager and vice president in charge of sales, respectively, during his last four years with that company.

Since he assumed his present executive capacity, Oakland sales have shown a steady increase, while this year they have assumed such phenomenal proportions that the Oakland Motor Car company has become one of the ten largest producers in the industry. And as a result of this situation it has been found necessary to build a plant costing \$7,600,000 for the manufacture of Pontiac sixes alone.

HEAT IS IMPORTANT

A correctly heated carburetor runs on less gasoline and runs smoother than an unheated one. With colder weather it is advisable to close the shutter on the hot air pipe between the carburetor and the exhaust manifold.

USE MORE OIL

Worn cylinders and piston rings allow the compression to pass into the crankcase and cause the engine to use more oil. The worn rings will not wipe off the excess oil.

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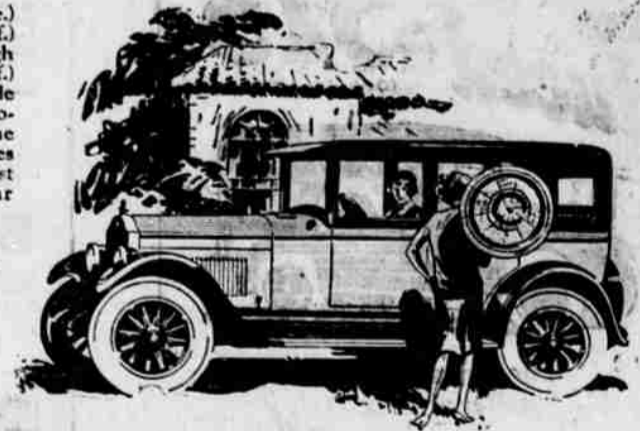
Hall Street Hill (Portland, Ore.) in high gear, Sacramento (Calif.) to Lake Tahoe and return in high gear, Hill 57 (Los Angeles, Calif.) in low gear, Dog Valley Grade (Reno, Nevada) in high gear, Spokane-Seattle-Portland-Spokane (985 miles) Star Six on 33.1 miles to a gallon of gasoline—honest proof that Star should be your car!

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