

# SCHEEL ROTARY VALVE ENGINE

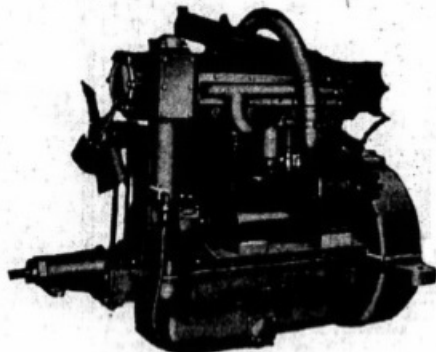
For  
Automobiles

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Trucks

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Tractors



INTAKE SIDE

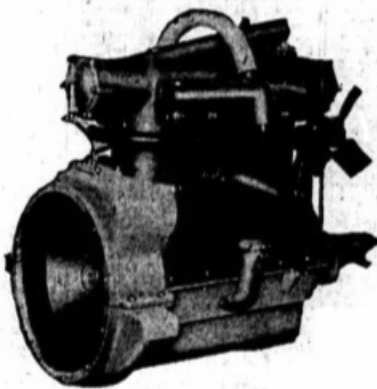
For  
Aeroplanes

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Motor Boats

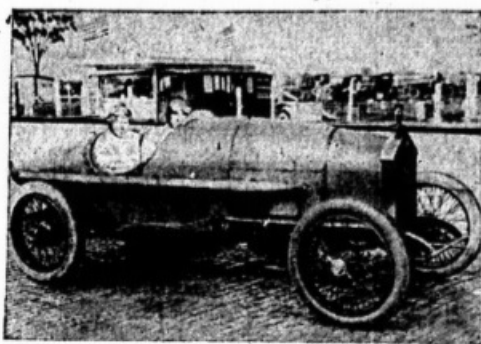
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Stationary  
Engines



EXHAUST SIDE

The ultimate automotive power.  
One single valve used.  
Upwards of 100 parts eliminated.  
No valve grinding, no valve adjustment, no valve noise.  
Greatly increased power.  
Greatly increased efficiency and economy.



The Scheel-Frontenac Racer  
(MR. HERBERT SCHEEL, PRESIDENT, AT THE WHEEL)

Thoroughly tried and proven in extended and extensive laboratory and road tests.

Indorsed by some of the foremost engineers in the industry.

Three of these racing cars entered in the next Indianapolis 500-mile race. Designed and built by Mr. Louis Chevrolet, the famous Engineer and Race Driver.

The first cars ever entered from St. Louis in the Indianapolis race.

*Owing to the limited facilities of the building, we were unable to secure space at the St. Louis Auto Show. We will, however, during the entire show week, exhibit at our factory the Scheel Rotary Valve Engine, a Scheel-Frontenac Racing Car and the Scheel Rotary Valve Four Automobile. We extend a cordial invitation:*

*Open Each Day Until 10 P. M.*

## SCHEEL MOTORS COMPANY

3922 West Pine Boulevard

HERBERT SCHEEL,  
President.

ST. LOUIS, MO.

JOHN A. SCHROEDER,  
Vice President and General Manager.

# Three Cars, Powered With Scheel Rotary Valve Engines, in Big Race

St. Louis-Built Engine Selected by Louis Frontenac for Racers for Indianapolis Classic on Decoration Day.

BY JOHN A. SCHROEDER,  
Vice President and General Manager  
of the Scheel Motors Co.  
of St. Louis.

No industry has ever developed as fast and in as short a space of

time attained its magnitude as the automotive industry. Twenty-five years ago, when the automobile or, as it was then called, the horseless carriage, first appeared, it was regarded as utterly impractical. The public in general declared itself opposed to it, and obstacles of all kinds were placed in the way of its development. Only



J. A. Schroeder.

through the far-sightedness, the courage and the persistency of its originators it was gradually demonstrated that not only could the automobile be made practical, but that it would form an important link and forward step in the rapid advancement of transportation and commerce.

From at first being a new toy for the sportively inclined, then a luxury for the rich, it gradually extended its usefulness until today it is an absolute necessity in business and all walks of life. It has brought the cities to the farmers' doors. It has been the means of furnishing added transportation for the hauling of freight and passengers, thus allowing of more rapid growth of business and manufacturing in general.

Its usefulness and absolute necessity could not have been more convincingly demonstrated than during the Great War, where the automobile and other automotive machines resulting from the automobile, such as motor trucks, tractors and airplanes, played an all-important part.

## Slow-Speed Engines of Past.

It is but natural that an industry of this kind would attract to it the best talent, engineering and commercial, and that constant and rapid improvements would be made. Operating conditions were studied. As the general public became educated to the automobile, their demands, their opinions and their tastes were studied. The many original weaknesses in materials and construction, tending to make the ownership of an automobile costly from a standpoint of upkeep and uncertain from a standpoint of operation, were gradually eliminated.

Higher grade and stronger materials have been rapidly developed, and new constructions tending to easier and more efficient operation have been worked out.

The automobile of today, with ordinary upkeep and repair, will give service day in and day out. Roadside repairs today are seldom seen. Whereas twenty years ago a 100-mile trip by automobile was almost marvelous, transcontinental trips today are common.

Not only has the construction been developed from a standpoint of durability and strength, however. The advent of the automobile and other automotive machines gradually created an immense and intense demand for gasoline and oil, straining the resources, and the cost of fuel and oil today is of prime importance. Consequently engineers more and more also bend their efforts towards producing machines more economical to operate, and along these lines great improvements in engines have been made.

The old engines of large bores and strokes, of slow speeds, consuming large quantities of fuel and oil, are things of the past. Smaller, comparatively more high powered and high-speed engines are used, and gasoline and oil consumption are today important selling factors.

## Poppet Valve Engines.

The engine used heretofore practically exclusively is of what is known as the poppet valve type, with two or more valves for each cylinder, operated from a cam shaft through valve tappets and pushrods, closing through springs. Great improvements have been made in these engines so as to bring about higher efficiency, more power and more reliability.

Attached to this type of engine there are, however, certain inherent peculiarities of construction, which limit their power and speed and which necessitate more or less attention. This is the valve mechanism. The sizes of valves are necessarily limited, as is the lift of the valve permissible with the cam. This in turn limits the amount of gases that can be handled through these valves.

The valves being subjected to great heat, especially the exhaust valves, are subject to warping, causing leakage. Carbon deposits on valves and valve seats will cause pitting as well as leakage. A certain clearance is necessary between tappets and valve stems or rods, causing noise in operation.

Other valve constructions have therefore been given a great deal of attention by automotive engineers, and among these the rotary valve has been considered the most practical. Several types of rotary valves have been experimented with, with more or less success. Until the advent of the Scheel rotary valve engine, as developed by the Scheel Motors Company of St. Louis, however, real success was not obtained. The problems of handling the expansion of the valve and its lubrication were stumbling blocks.

These problems have been successfully solved in the Scheel rotary valve engine. A single rotary valve is used, mounted lengthwise across the top of the cylinders. Instead of running this valve direct in its seat, as has heretofore been the practice, the Scheel valve is mounted in two large tapered roller bearings, the valve itself having a small clearance in the seat its full length. The valve is slightly tapered and so mounted in the bearings as to be absolutely fixed at the small end. The large end on the other hand is allowed to float in its bearing.

Thus as expansion takes place, the valve in elongating is forced to elongate towards the large end, and as its diameter increases through such expansion, the correspondingly tapered seat compensates for this increase in diameter and allows a constant clearance to be maintained between the valve and the valve seat regardless of expansion and contraction. Thus it is impossible to "stick" the valve, and the chief problem is solved.

The clearance space between the valve and the seat is successfully sealed with a film of oil, forming a dependable hydraulic seal.

## Welcomed by Industry.

The advantages of the rotary valve engine over the poppet valve type are so many and so pronounced that the Scheel rotary valve engine is genuinely welcomed by the industry in general.

Upward of 100 costly valve parts are eliminated. All valve adjustments, valve grinding and valve noise are eliminated. So are also all gas pockets, bends and turns in gas passages, which tend to decrease the efficiency of an engine. Almost unlimited intake and outlet passages for the gases can be obtained, resulting in easier and quicker handling of the gases.

The construction is such that the fuel mixture is drawn into the cylinders over the same valve surface, over which the burnt, hot gases are just previously expelled. The incoming fuel mixture passing over this heated surface insures perfect evaporation of the fuel. Maximum power and efficiency is therefore obtained and the formation of carbon is practically eliminated. The positive opening and closing of gas ports permit of higher speed with increased power and greater flexibility.

Through the elimination of the many costly parts, the Scheel rotary valve engine, with its many advantages, can be built at less cost than poppet valve engines of corresponding size and quality.

The Scheel rotary valve engine has been thoroughly tested and tried during the past two years. A test car has been driven close to 60,000 miles, under the most severe conditions. The Scheel rotary valve engine automobile, which the Scheel Motors Company is considering placing on the market, also has been given severe and thorough tests and extensive laboratory tests have been made as well.

To prove beyond a doubt the correctness of the principle and construction of their engine, the Scheel Motors Company have entered three cars in the next Indianapolis 500-mile race. These cars, designed and built by Louis Chevrolet, the famous engineer and race driver, are now nearing completion and will be known as Scheel-Frontenac cars. One of these racing cars, although powered with a regular Scheel rotary valve stock engine, is on exhibit at the plant of the Scheel Motors Company.

From the interest shown among automotive engineers and manufacturers during the recent Chicago Automobile Show, and from the many requests for sample engines, the company feels confident that in the comparatively near future the Scheel rotary valve engine will be used very extensively in automobiles, trucks and tractors.