

### MAKING MACHINES LIGHT-IN WEIGHT

#### Peerless Cars Built Like a Bridge For Lightness, Strength, Etc.

New that the motor car has been made thoroughly practical for every business use, automotive engineers are concerned in making many refinements in design and construction. The Peerless car is particularly noteworthy in this respect. Their engineers have worked tirelessly to get the proper weight distribution and balance of materials with greater strength and lightness. They have borrowed from all engineering principles to accomplish their purpose. A notable feature in the construction of the chassis is its bridge design. Feeling that the same principles apply, those of great strength and flexibility, they are using the same bracing. Formerly the frame depended for its rigidity upon deep

channel-shaped side members. To give the necessary strength they had to be of fairly heavy construction. This extra weight was felt to be unnecessary by the Peerless engineers and they have been successful in greatly reducing the weight of the frame side members by using a principle familiar to bridge design, the truss. This construction permits far greater strength with greatly reduced weight for the truss-rod furnish exceptionally strong bracing throughout. The frame of the motor car when in action is subjected to about the same strain as a bridge as it is virtually a bridge between the front and back wheels. It must carry all of the weight of the body and passengers and at the same time be both rigid and flexible to uneven road action. The constant play on the frames of usual design is very likely to cause crystallization of the steel which is not true in the truss design. There is no new principle involved in this type of bracing as it has been used for a great number of years in bridge building. Its application, however, to the frame of the automobile was first adopted by the Peerless Motor Car Company to accomplish greater strength with considerably lessened weight.

### Second Hand and Factory Second Tire Store Opens

A new second hand tire and factory seconds store has been opened by the Hamilton Tire Company, at 250 Hamilton street. This firm will buy and sell all kinds and sizes of tires and also do a general vulcanizing business. A special feature that is being introduced by this firm is the recovering of auto tops and the installation of seat covers of all kinds. In 1899 automobiles were excluded from the public streets of Boston from 10:30 in the morning until 9 o'clock in the evening.

### STEPHENS SIX COMES TO CITY

#### J. S. Sible, Jr., Takes Over Agency For Harrisburg and Vicinity

J. S. Sible, Jr., takes over agency for Harrisburg and vicinity. The Stephens Salient Six, a product of one of the largest manufacturing firms in the country, the Moline Plow Company, is now being distributed in Harrisburg by J. S. Sible, Jr., with offices and salesrooms at Third and Cumberland streets. The Stephens is a six-cylinder overhead valve motor, rather light, but sturdy built, with all kinds of power and speed. It is the result of years of manufacturing experience and is backed by a company that has a reputation for business integrity covering fifty-two years. It gets its name from the president of the Moline Plow Co. In the touring car, the beautiful streamlining effect of the body makes it a car that is surprisingly a beauty and with the power and speed together with its idling ability and acceleration, makes it a desirable car. Mr. Sible announces that he is in a position to make immediate deliveries, having a few of the cars already on hand.

"It scares horses!" was the cry of many anti-automobiles in 1805. "Suppose it does," wrote a well-known writer at that time, in defense of the motor car; "so do locomotives, bicycles, street cars, Fourth of July celebrations, and a dozen other things. Horses must get used to it."

American trucks have transported food and supplies thousands of miles from interior centers to Atlantic seaports during the last winter and spring. The trucks are reliable as the railroad freights, which they have relieved of so much congestion. These giants will be on exhibition at the exposition too.

And no one will ever forget how the British tanks converted the American tractors—raised particular havoc in the allied drives against the Germans last year. Tanks are only one phase of tractor development, which will be graphically shown by the tractor exhibits.

American tractors are doing heroic service in France—converts "tanks," but in farming—plowing, harrowing, sowing, harvesting and transporting crops back of the fighting lines. The war has forced American farmers also to adopt the tractor earlier than it would have been adopted under ordinary progress. First, tractor development perfected the tractor which four years ago was little more than an experiment. Next, the crying demands for increased production and conservation of horsepower, made it profitable for farmers to buy tractors.

This year the tractor manufacturers cannot begin to produce these wonder-workers fast enough. In the Middle West and accessory exposition to select the tractor best suited to their needs. This is determined by size of farm, soil and condition of soil, roads, fuel supply, and simplicity of operation. Farms where six horses eat up \$1,000 worth of feed each year can now buy a two-plow tractor for little more than one year's feed bill. While the allies and the United States government buying up every sound tractor for sale, the replacement of horses is desirable not only from the standpoint of economy in "upkeep," but from patriotic necessity.

That the ten states of Illinois, Missouri, Kentucky, Indiana, Nebraska, Ohio, Michigan, Wisconsin, Minnesota and Iowa alone have half a million tractor prospects proves the importance of the exposition in September, where the farmer will see and compare all the leading tractors.

The accessory car of the exposition will be no less important because since it has become a sign of service to make the car more than was expected of it, accessory manufacturers have concentrated all their efforts to putting out essentials which will add years to the life of used cars and take many dollars off their upkeep charges.

Taken from every standpoint the great automotive exposition over the waters of Lake Michigan will be one of the most vital and far-reaching human interest demonstrations ever held in all of this broad land.

### Gear Ratio Important to Good Performance

Among more or less technical motor car terms, the rear axle gear ratio is probably as puzzling and meaningless as any other to the average car owner or layman. It applies to the number of teeth in the rear axle gears which transmit the engine's power to the driving wheels. In other words, it governs the relative speed of the engine and the rear wheels as the relation pertains to maximum and minimum car speed, getaway and pulling ability.

The Cadillac Motor Car Company recently advised its dealers that one of the specifications which should receive special attention in car orders is the gear ratio, pointing out that the character of the country in which the car will be driven, or the work to be done, should guide the selection of the gear ratio.

A gear ratio of four-and-one-half-to-one, for example, means that the engine crankshaft makes four and a half revolutions while the rear wheels make one revolution. It is not difficult to understand that a car so equipped will have a faster getaway and be more powerful in sand and on hills, in high gear, than a car with a three-and-a-half-to-one ratio. The latter car would have a greater maximum speed than the former because when the engine is at maximum speed the rear wheels would be making a greater number of revolutions per minute. On the other hand, it would be necessary to shift to a lower transmission gear earlier, with such a car, than with a four-and-a-half-to-one ratio. This is because the gasoline engine depends on its speed for its power—it generates greater power at the higher speeds.

The importance of quick getaway in a car used in great deal of city traffic, or pulling ability on high gear in rough and hilly country, almost dictates a lower gear ratio. The owner who drives mostly in level country, or who prefers occasional gear-shifting to any sacrifice of speed, probably would choose the higher ratio. The safest course, for the average owner looking for good all-around performance rather than mere speed, would be the lower ratio.

A prominent physician at Flatbush, N. Y., was the owner of an early motor car which at that time, he stated, saved him six hundred dollars in a year, as compared with the cost of two horses which he formerly kept in his practice.

### CHICAGO EXHIBIT OF MOTOR CARS

#### Big Exhibition to Be Held in September of This Year

The great truck, tractor and accessory exposition, to be staged out in Chicago's \$5,000,000 Municipal Pier in September, will be in the most patriotic sense a national exposition of war-time essentials.

When the Hun hordes made their first confident rush through stricken Belgium in the summer of 1914, it was the taxicabs of Paris—hitherto used for business and pleasure as are city cabs today—which were "nailed" all at once by the government, mobilized for the Army and used to transport the thousands of hastily organized Frenchmen from Paris to the Marne, which they reached in time to stop the barbarian onslaught.

Those Parisian taxicabs landed the unexpected blow on the Kaiser's self-confident battalions, saved Paris, and started the Germans back toward Germany. The "Deutschland Uber Alles" got no further than where the Paris taxicabs discharged their soldiers.

Since that day the passenger car, the truck and the tractor have played a steadily increasing part in the war, and American makes have endeavored themselves to the people of France and Belgium in Italy, England, and elsewhere. Wonderful strides have been made, principally in the truck and tractor lines. At the exposition September 14 to 21, will demonstrate under one roof how American manufacturing met the government's and the allies' calls for aid.

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### Graphite in Lubricant Helps Eliminate Friction

"Absolutely perfect lubrication is an impossibility," says an eminent authority on lubrication. "If it were not, your car would have perpetual motion and it would run until it doomsday, once it got started."

"Hence, so long as you cannot eliminate friction altogether, it behooves the motorist to use the lubrication that will reduce it to a minimum. The manufacturers of Dixon's Graphite Motor Lubricants claim almost perfect lubrication for their products. They are made of specially selected greases as the grease is used merely as a medium to carry the graphite. It is the graphite that does the business, as the grease is used merely as a medium to carry the graphite. The Dixon Company mines its own graphite at Ticonderoga, New York, and refines it for use as a lubricant.

"Graphite forms a permanent film between the bearing surface, filling up the many hollows and smoothing out the uneven places. It does not pack or lump, is permanent, and does not squeeze out. This is the sort of lubricant that reduces friction to a minimum."

The United States Army made their first experiments with armored motor cars in the summer of 1919.

### NEW AUTO SUPPLY HOUSE IS OPENED

#### M. Brenner and Sons Motor Company Opens New Store at Third and Hamilton

During the past week, a new automobile accessory store was opened in the west end Third and Hamilton streets, by the firm of M. Brenner and Sons Motor Company.

This firm purchased the old Harrisburg Auto Company's garage and the store rooms that faces Third street just above Hamilton street and have changed them into a modern, up-to-date garage and accessory store. The storerooms and office were opened last Tuesday for business and the garage, now in the course of construction, will be opened in a few weeks.

This firm is the local distributor for the Kissel Kar, both touring cars and trucks. They have had temporary offices at 638 Herr street, but have now changed to their new office at the above address. They have several of the cars on hand for demonstration and Ephraim Brenner, the general manager, announces that they will soon be in a position to make deliveries on order. With the completion of the store, they will be ready to give immediate attention to all service calls for the Kissel Kar.

In the opening of the accessory store, this new firm realized the demand for such an establishment in the west end, and have exerted every effort to make the store complete and supplies the most complete in the city. Practically anything in the automobile supply line can be purchased at this store. Owing to traffic conditions some of the stock has not yet been received but the next few days will see as complete a stock as can be carried in the store.

C. C. High, a local man well-known to the automobile trade, and who has had several years' experience with local firms, has charge of the accessory branch. All business pertaining to this new firm will be executed at the offices at Third and Hamilton streets.

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## Stephen S Salient Six

### Meets Every Requirement of the Motorist Beauty, Power, Speed, Idling Ability Acceleration

Backed by a company that has earned an honorable reputation for business integrity through fifty-two years of earnest manufacturing endeavor—the Moline Plow Company—the Stephens Salient Six would never be put on the market an inferior article. It must and does meet the strict requirements of engineers of national reputation. It is an assured fact that the Stephens is a protected investment. Aside from this all-important fact, the Stephens is a car that can accomplish every requirement of its owner, from climbing impossible hills to idling along a sunny boulevard. With its graceful lines and wonderful design, it gives an individual pride of ownership, a car to be proud of in any array of cars. Its motor is the celebrated overhead-valve design, with such added improvements that makes the Stephens motor stand out as one of the most efficient, economical and desirable machines of the day.



**PRICE, \$1585**  
F. O. B. MOLINE.

#### DETAIL SPECIFICATIONS

**IGNITION**—Delco double unit system.  
**STARTING AND LIGHTING**—Delco with Bendix drive on starter.  
**BATTERY**—Willard LBA 90 ampere storage battery.  
**CLUTCH**—Hotchkiss principle with double universal joints; practically attention proof.  
**TRANSMISSION**—Selective sliding type with three speeds forward and one reverse; nickel-steel gears double heat-treated; drive shaft ball-bearing mounted; center control.  
**DRIVE SHAFT**—Hotchkiss principle with double universal joints; no cumbersome torsion tubes or radius rods.  
**AXLES**—Front, drop-forged I-beam, Bower roller bearings. Rear, full floating, pressed steel housing; spiral-bevel gears that are noiseless; Bower roller bearings in wheels.  
**BRAKES**—Internal expanding and 14-inch external contracting, faced with best heat-proof friction material. A braking surface of 300 square inches.  
**SPRINGS**—Unusually long and straight insuring flexibility; front 3 1/2 inches, semi-elliptic; rear, 5 1/2 inches, semi-elliptic.  
**STEERING**—Gemmer, of worm and full gear, on left side. An 18-inch wheel with finger corrugations.  
**WHEELS**—Wood artillery type with 1 1/2-inch spokes. Wire wheels furnished on special order at extra charge.  
**WHEELBASE**—118 inches.

**IMMEDIATE DELIVERIES**  
WE WILL BE PLEASED TO TELL YOU ABOUT THIS REMARKABLE CAR AND DEMONSTRATE AT YOUR CONVENIENCE.

## J. S. Sible, Jr.

Price Will Advance After July 25, \$1675  
THIRD AND CUMBERLAND STS. BELL PHONE 1555W

## STERLING TIRES ARE GUARANTEED 5000 MILES plus FREE REPAIRS

Free Repairs Custom Made

means that every Sterling tire that goes out of our store will be repaired free of charge, whether the damage is a blowout or puncture or from any cause whatever. This means a saving of from \$5 to \$10 on a tire. It's worth considering.



## KEYSTONE SALES CO.

108 Market Street Both Phones

## DUPLIX 4-WHEEL DRIVE TRUCKS

### The Monotony of Unusual Performance

To Duplex 4-Wheel Drive Trucks, the unusual is the commonplace! Breaking records has become a matter of course. To us, Duplex performance is nothing to wonder at; it is expected—planned, and predetermined. This is why we rarely cite definite cases of Duplex achievement, such as the following:

Between Edgewater and Paterson, N. J., is the famous—or infamous—Fort Lee hill. It's a mile long and has grades up to 17 per cent. Doesn't sound difficult to negotiate?

No! But the bottom abounds in deep chuck holes; the middle is a mass of soft asphalt; the top section is rough cobblestones. As good measure, there's a hair pin turn on the last lap.

Still, it's negotiable—for an automobile or a lightly loaded truck. But the Duplex was neither!

At Edgewater they gave the Duplex eight thousand pounds of sugar to carry—and another six thousand (loaded on a trailer) to haul. All told, the load totaled seven tons.

Summarized, the conditions were:  
A stiff grade; bad road surface; difficult turn where the grade was steepest; seven tons on truck and trailer; new, stiff engine.  
The 3 1/2-ton Duplex made it!  
Made it in twelve minutes. Made it without difficulty, although in places the soft asphalt was two inches deep.  
Then it completed its 50-mile run on a total gasoline consumption of seven gallons, and at a cost of four cents per ton mile.

To us this performance is not particularly startling; to us such accomplishment is perfectly natural. But here are quotations from truck users—who keep careful tab on all trucks:

"Seven miles to the gallon with four tons on truck, and pulling a trailer carrying three tons is indeed a marvelous performance."  
"It does not seem possible that any truck . . . could obtain such remarkable mileage."  
"In all my records, which cover the operation of 1,400 different trucks, I can find nothing to compare with it."

The Fort Lee hill performance was unusual as a motor truck achievement, and not unusual as a Duplex accomplishment, simply because such ability is built into every Duplex truck. Exclusive principles—correct designing—careful construction—and ten years spent in doing it—help us produce a truck that is so dependable.

## HARRISBURG AUTOMOBILE CO., Distributors.

## DUPLIX TRUCK COMPANY — Lansing, Michigan

## If Ever You Needed An Automobile---

### YOU NEED ONE TODAY!

The Most Serviceable And Economic Car For Every Day—Week—Month, Is The 'ALL YEAR' KISSEL KAR

Never before in the history of the country has any means of transportation played so important a part in its welfare as does the automobile today. And one of the best known, most serviceable, and most economic machine is the KISSEL KAR. For every purpose in all seasons and all weather, the 'All-Year' Car is conceded America's best convertible motor. It is mounted on either the 'Hundred Point Six' chassis or Kissele's new 'Double Six' chassis. For power, speed, durability and service, the Kissele is the nearest approach to the ultimate in motor car performance.



ALL-YEAR CAR—Sedan top attached to Gibraltar 5-passenger Staggered door body mounted on Hundred Point Six Chassis. It is one of the five super Kissele Kar Models.

## KISSEL KAR TRUCKS

Never before has there been offered to the mercantile, industrial and manufacturing world such quality trucks selling at prices that emphasize their unusual value as in the five new Kissele models. All of these five models are equipped with the Kissele-built motor and other superior mechanical units including the perfected worm drive rear axle, superior front axle, etc., that insure efficient performance at all times with low upkeep and high tire and gasoline mileage.

One of the most notable achievements of the Kissele truck is the 'All-Year' cab that protects the driver in all kinds of weather, winter and summer. This in itself is a big reason for the purchase of a Kissele Truck.



Note the 'ALL-YEAR CAR' as well as the sturdy construction of the illustration above. Protection for the driver is an assured fact with the KISSEL Truck.

## Our New Automobile Accessory Store

### At Third and Hamilton Streets

is equipped with a complete stock of all the latest motor appliances on the market; tires, tubes, blowout patches, quick repairing outfits, cement, radiator repairing cement, vulcanizing outfits, jacks, pumps, wrenches, pliers, anti-skid chains, oils, greases, lamps, horns, lunch sets, dry batteries and the hundred and one necessary articles that will meet the requirements of the motorist.

We solicit your patronage and assure you prompt and efficient service and full value for your money.

## M. Brenner & Sons Motor Co.

Third and Hamilton Sts. EPHRAIM BRENNER General Manager.  
"Look for the Red Sentry"