OUR AUTOS SOLD EVERYWHERE

AMERICAN MAKERS HAVE INVADED THE EARTH.

Our Trade With Foreign Countries Has Increased Markedly in the Last Few Years and the Tide Has Turned in Favor of Our Exporting Activities.

WASHINGTON, Jan. 7. The American manufacturer of automobiles has not waited for the flag and the Constitution; he has invaded practically every country in the world and the chug of American made motors can be heard from London to Sydney and from Bombay to Manila. All the figures for the fiscal year which ended June 30, 1910, have not been compiled but for 1909 and the years previous they make an interesting record for automobilist and those concerned in their manufacture and sale.

In 1909 Europe took 1,127 of our automobiles, valued at $3,018,228; North America (exclusive of course of the United States) took 1,577 cars, worth $1,983,106; South America secured 143 machines for $122,836; Asia got along with eighty-eight cars, worth $74,920; Oceania trailed next with 211 motors, valued at $150,662, and Africa the Dark Continent had to have thirty-eight automobiles of American make, worth $57,269.

Egypt got one car in that year, the Canary Islands two, the Straits Settlements down under the equator listened to the spit of fourteen gas buggies, while the city of Hongkong, the Empire of Japan, Turkey, New Zealand and other places a few thousand miles from Broadway or Detroit or Cleveland, where they use and make these cars, each saw the American made machines fly past in dust and glory.

In round numbers, American manufacturers exported during the fiscal year of 1910—for which time the recapitulation by countries has not been completed—6,926 cars, valued at $9,548,700. In 1902 the American trade amounted to only $948,528, an increase in the eight years of practically $8,500,000. The number of automobiles exported was not collected by the bureau of statistics until 1907, but in that year just 2,862 machines were sent out of the country, showing that the trade has apparently increased almost two and one-half times.

In giving out these figures O. P. Austin, head of the bureau, wished it understood that they were not entirely accurate because so far the bureau has been unable to determine just how many automobiles reported under the "export" column were in reality taken out of the country by Americans bent on touring and later returned. Instructions have been issued to collectors of customs to ascertain where possible if cars being taken out of the country were taken for touring purposes or for sale. Collectors on the Canadian and Mexican borders have been able to comply with this direction, but those at ports like New York and Boston found insurmountable obstacles to this plan.

"While the figures show that almost 7,000 automobiles were exported in 1910," said Mr. Austin to-day, "it is impossible to say how many of these were taken out for touring purposes by residents of the United States and later brought back again. To state accurately therefore the value of American automobiles actually exported for sale abroad is rather difficult. I discovered that under the title of 'articles, the growth, product and manufacture of the United States returned,' more than $12,000,000 worth of goods came back to this country last year. In the same year, according to our reports, we apparently imported 1,624 automobiles, with a value of $2,905,391. How many of these cars actually were imported and how many had been taken out by Americans and brought back again cannot be stated. We are making efforts to collect more accurate data, but so far they have been unattainable."

Keeping in mind Mr. Austin's warning the figures, giving the exports and imports of automobiles show either that the foreign made car is declining in favor here or that more Americans are touring abroad each year, sending out their own American machines and bringing them back again later. In 1906, the first year in which the bureau kept statistics of foreign cars, 1,106 were imported into the United States. They were valued at $3,844,505.

The next year these figures jumped to 1,176 and $4,040,025, and from then on have declined. The number of cars increased greatly in 1909, reaching 1,624, but the value of them declined almost as much, sinking to $2,905,391, showing perhaps that the price of the automobile has gone down. Further proof, it may be so called, of the apparent decrease in price of cars may be obtained from a comparison of the number and value of cars exported. In 1907 the 2,862 cars exported were valued at $4,890,886, while in 1910 the 6,926 cars were said to be worth $9,548,700.

Roughly speaking in 1907 the cars exported averaged $1,700 each in value, while in 1910 the average value was only $1,400. It is argued that if the prices did not come down more cheap cars were exported.

Beginning in 1903 the figures for 1902 having been given before the bureau shows these exports of automobiles: 1903, $1,207,065; 1904, $1,895,605; 1905, $2,481,243; 1906, $3,497,016; 1907, $4,890,886; 1908, $4,656,991, and 1909, $5,387,021. In 1907 the value of automobile parts exported was $611,355; in 1908 it was $620,856; in 1909 it was $605,179, and in 1910 it was $1,641,520. In 1908 2,477 cars were sent abroad and in 1909 the number was 3,184.

The imports of motor cars for 1906, the first year given, amounted to 1,106, with a value of $3,844,505; in 1907 it was placed at 1,176 cars worth $4,040,025; in 1908, 1,045 cars, worth $2,500,134; in 1909, 1,624 cars, worth $2,905,391, and in 1910, 1,473 cars, valued at $2,851,446. In the same years the parts imported were vaued at $400,514 in 1906; $801,254 in 1907, $490,905 in 1908, $773,743 in 1909 and $985,638 in 1910.

Of the automobiles and parts exported in 1905 Great Britain took $607,401, Canada took $441,425 worth, France came third with $252,742 worth, Italy fourth with $159,396, Germany fifth with $154,141, Hayti took in that year $30 worth, Dutch West Indies purchased $50 worth, the French West Indies raised her neighbor to $88 and Salvador trailed along with $65.

In 1907 the values of automobile and automobile parts exported were first kept separately and this division has been continued. In 1909, the last year for which these figures are now obtainable, England took $1,673,914 worth of automobiles and $125,726 of parts; Canada bought $1,457,129 worth of our automobiles and $230,509 in parts; France purchased $643,602 in automobiles of American make, but put only $17,933 in parts. Italy took $240,516 worth of cars in that year, Mexico $282,462, but Germany bought only $136,966, both of the former buying few parts apparently; but to Mexico were sent parts valued at $104,984. In 1909 China invested $3,369 in automobiles and Hongkong, the British seaport in that empire, expended $459 for an American gasolene buggy. In South America Argentina bought $1,614 worth of American cars, Brazil $26,892 worth, and little Paraguay spent $823 in the same way. Bolivia, Peru, Ecuador and Venezuela were the only South American countries that did not buy the American cars. In that year some broken down adventurer had $6 worth of parts sent to Ireland.

On the side of imports of automobiles, France leads in sales to this country. In 1906 she sent us 829 cars valued at $2,806,898; in 1907, the number jumped to 841 cars valued at $2,940,387; in 1908 it receded to 793 cars worth $1,775,589, and in 1909, the last year available, the total of cars was 1,099, worth $1,838,653. Second place swung between Great Britian and Italy. Great Britain in 1906 sent us 77 cars valued at $314,193; in 1907, 103 motors, worth $347,758; in 1908, 65 cars, valued at $199,377 and in 1909, 100 cars, worth $226,050. Italy sent in the four years 91, 144, 32 and 328 cars worth $270,794, $420,154, $331,363 and $561,629 respectively.

The 1910 census has not yet been completed and detailed figures respecting the various industries will be lacking for some months. Statistics have been compiled which show a vast army of American people dependent upon the automobile industry for a livelihood. There are 140,000 men employed in or about the factories devoted to the manufacture of automobiles themselves. The parts makers, dependent solely upon the motor car industry, number 1,500,000 workmen. Added to these are 7,000 selling agents and their 38,000 employees. Assuming each one of these men to have a family of at least three depending upon them, the grand total becomes 6,742,800.

The value of the motor cars sold in the last five years is estimated at $140,000,000. Of this it is asserted 25 per cent. went directly to men employed in automobile factories, while an additional 15 per cent. is accounted for in the wages paid to those in other lines dependent upon the industry. The expense of shipping the raw material and finished product for the past year is fixed at $300,000,000, of which 50 per cent. went to toilers, who have not been listed in the above total of those directly dependent upon the industry.

The 253 automobile manufacturing concerns in the country are located as follows: Michigan, 39; Illinois, 39; Ohio, 30; Indiana, 30; New York, 29; Pennsylvania, 18; Massachusetts, 16; Missouri, 12; Iowa, 7; Wisconsin, 6; Minnesota, 6; Connecticut, 4; New Jersey, 4; California, 4; Nebraska, 2; Maryland, 2; Rhode Island, Texas, Kansas, Colorado and Nevada, 1 each.

ELMORE VALVELESS.

These Machines Have the Much Talked Of Two Cycle Engines.

Another of the main floor exhibits is that of the Elmore Manufacturing Company, which displays four of its cars in space 8. A model 25 touring car is designed to seat four persons, and has a four cylinder two cycle engine. The two cycle engine is a feature of the Elmore line, and is dilated upon strongly by it. This is a 30 horse-power engine, cylinders cast separately and arranged vertically. Bore is 5 inches, and the stroke 3½. A vertical type radiator is used in the water cooling system. Ignition is by jump spark.

These are shaft drive cars, with a selective sliding gear transmission furnishing three speeds forward and reverse. A multiple disk clutch is used. The wheel base is 108½ inches and the gauge 56 inches. Tires are 32 by 3½, both front and rear, and contracting and expanding brake systems are used on both rear wheels.

The touring model sells for $1,250, and a more expensive car is the 36B, which is furnished in touring car and demi-tonneau at $1,750. This has a four cylinder engine, bore 4½ inches and stroke 4 inches. It is larger than the other, but again without valves. The carburetor is of Elmore make, and the double ignition system Atwater-Kent magneto is furnished on the larger car. Current supply is from dry cells. Tires are 34 by 4.

The touring car seats five and the demi-tonneau four. The wheel base is longer than in the other model, being 114 inches, but the gauge is again 56 inches. The springs are semi-elliptical in front, and three-quarters elliptical in the rear. Multiple disk clutch is used, and there are three forward speeds and one reverse. Change gear is 3 to 1, 4.5 to 1 and 10.08 to 1 on the forward speeds, the reverse being 12.7 to 1.

THREE CARS IN OHIO LINE.

Description of the Exhibit of These Makers.

There are three cars in the exhibit of the Ohio Motor Car Company in space 202 in the balcony. A touring car, a roadster and a torpedo are shown. The roadster body and chassis are tillyho red. The torpedo body and chassis are battleship gray, and the touring car has a dark blue body with a gray chassis. These are regular colors in the Ohio line.

The power plant is a unit with a three point suspension. A four cylinder motor with the cylinders cast in pairs is used in all models. In the roadster the bore is slightly less than in the other types, being 4¼ inches. The other cars have 4½ inch bore. In both cases the stroke is 4¾ inches.

A dry battery and Splitdorf low tension magneto furnish the electrical source for a jump spark ignition. A Mercedes type radiator is used in the water cooling system. An accelerator is furnished in addition to hand control of spark and gasolene on the steering wheel. Five plate disks, three plates of steel and two of brass, run in oil, form the clutch. The transmission is of the selective type. There are three speeds forward and reverse.

Gears and shafts are made of nickel steel. The propeller shaft is of nickel steel, as well as the straight line drive bevel gears. Pressed steel is used in the frame and steel also is used in the gasolene tank. Springs are semi-elliptical both front and rear. Thirty-six by four inch tires, quick detachable, are furnished, Republics being regular equipment.

A cape top, automatic wind shield, Stewart speedometer, foot and robe rail, two searchlights, two dash lamps, a tail lamp and a gas generator as well as horn, tool kit, pump, jack and rubber repair outfit are furnished as standard equipment. The touring car fully equipped is $2,150, as also is the roadster. The torpedo fully equipped sells at $2,450.

A RAINIER CAR.

A High Powered Machine Displayed by the Marquette Motor Company.

The Marquette Motor Company of Saginaw shows in the balcony in space 210 a 1911 model of the Rainier, which is numbered 47 and has horse-power of 45-50. The carbureter is of the Marquette's own make and ignition is by the make and break system, a current supply coming from a magneto. A four cylinder engine with T valves, bore 5 inches and stroke 5¼ inches, furnishes the motive power.

The lubrication is by the splash system. This car has a fairly long wheel base, it being 120 inches, and the tread is 56 inches. The front springs are semi-elliptical and the rear are platform springs. A multiple disk clutch is used and a multiple system of gears, with four speeds forward and one reverse.

This is a fore door touring car with a seating capacity of seven. The load capacity is 800 pounds and the chassis weighs 2,800 pounds. Tires are 36 by 4½ inches and the car sells for $4,250.

Only two changes have been made on the Rainier for the 1911 type, the steering column and the clutch. The steering column has been strengthened and simplified without adding materially to the weight. The clutch is built in a housing separate from the transmission, although in its final assembling it is integrally joined in the transmission and becomes with it a single unit. This does away with any universal joint and relieves the strain on the motor and by this compact arrangement allows greater accessibility.

VICTORIES OF THE AMERICANS

THEIR GROWTH IN AUTO RACING HAS COME LATE.

C. A. Emise Reviews the Work of Our Cars in Contests and Shows How Great an Improvement Has Been Made Only Recently Earlier Reverses Many.

The following on the American car in racing was written for THE SUN by Charles A. Emise of the Lozier Motor Company:

The year 1910 witnessed a great revival in public interest in automobile speed and endurance contests. Half a dozen years ago automobile enthusiasts were aroused to fever heat over the marvellous contests of speed in the great struggles for the Vanderbilt trophy down on the Long Island roads. Manufacturers began preparations for this event months in advance. The race was talked about and discussed all over the world and careful plans were laid in the big factories of the world in an attempt to win the Vanderbilt trophy and incidentally increase the sales of cars, a result certain to follow victory.

A car won and it became in a day famous throughout the world. The defeated contestants went home to build and plan anew. Bigger cars and more powerful cars were built. Weights were reduced and still bigger motors were conceived until monstrous machines fit only for a racecourse were contending for honors. Thousands upon thousands of dollars were spent on these racing freaks until the manufacturers grew tired of the enormous expense and in self-defence the big European builders who had been playing this game the hardest agreed that the results did not justify the enormous expenses and racing was stopped.

The American manufacturer had been too busy building cars to take care of the insatiable demand for agencies to go into the racing game against his big foreign rivals. The American public had found out that it needed automobiles, and lots of them, and every American factory was working night and day attempting the almost impossible task of building enough automobiles to supply the demand.

A few times one or two American manufacturers had, in the fall, paused long enough in their work to tune up one or two cars, and after a few hurried experiments, with a view to making them faster, had entered them in the big annual contest. A few times the manufacturer had even been ambitious enough to build two or three racing cars, but he had not hoped to win and as a rule made but a sorry showing. The American public year after year was forced to view with chagrin the spectacle of American cars entering races on American soil against foreign automobiles, admitting in advance that all they expected was to see the American cars "make a good showing."

With the agreement of the foreign manufacturers to withdraw from racing came the opportunity of the American builder. He conceived the idea of racing with his stock car. Here was a form of contest that was inexpensive. He had learned through the hard service to which his customers had been subjecting their cars in touring over the rough country roads of America how to build a car which would stand up and endure, and with bigger motors and the increased demand for bigger cars and more power he had learned how also to build for speed.

In 1907 the Vanderbilt cup race had almost become a memory and automobile racing had become, in America as in Europe, apparently a thing of the past. A number of manufacturers and dealers conceived the idea and entered an agreement to conduct a road race between stock cars or cars they were building or selling to their customers. This involved little expense, for the cars required no special preparation, it being only necessary to strip them down to racing condition and start them away. The Briarcliff race held in New York city in April, 1908, was the result, and it furnished one of the most interesting and most stirring road races that had ever been seen in America.

A foreign stock car won, but the showing made by the American cars gave demonstration of the fact that the American builder was learning how to build a car that would at least make a showing much more creditable than had ever been witnessed in former racing events.

Even before this the idea of a contest between stock cars had been put into execution in twenty-four hour races. In Philadelphia the season before an American built Lozier had won a twenty-four hour race, defeating the Mercedes and Darracq, both of these makes of cars having been winners or important factors in the big Vanderbilt cup race; and later in the season at Brighton Beach an American Thomas and a Lozier had finished first and second in twenty-four hour events, again defeating the Darracq, as well as a De Dietrich, Pilain and De la Haye—all of them cars prominent in the great road racing events of the world.

At Morris Park in the same year the Renault and Fiat had each won a twenty-four hour event, but the American cars had run them a hard race and had left the Hotchkiss and De Dietrich in the rear.

These events marked the beginning of the supremacy of the American stock car in racing contests limited to the class of cars built and offered for sale, for in 1908 two American Lozier cars finished first and second, defeating a foreign built Renault and Fiat; and thirty days later an American Simplex repeated the performance by winning the second twenty-four hour race, an American Lozier finishing second, and both cars defeating, in addition to the Fiat and Renault, an imported Zust. In fact, in all of the twenty-four hour races of 1908, 1909 and 1910 American cars were with one or two exceptions universally victorious.

The success of the American cars in track races and their splendid showing in the road race at Briarcliff encouraged the American builder to engage in other stock car road races with his regular factory product, and big road races at Lowell, Mass.; Fairmount Park (Philadelphia) and Crown Point, Ind., were held, the American cars being with one exception winners in these events. Encouraged by these successes, the Vanderbilt cup race was revived in 1908, and for the first time an American Locomobile, driven by George Robertson, won the great trophy.

To emphasize the fact that the American car had come into its own Grant in an American built Alco repeated Robertson's performance by winning the 1909 Vanderbilt, although a number of prominent foreign cars, including the Fiat, Mercedes and Isotta, were among the contestants.

This was the situation at the beginning of the season of 1910, just passed. Aside from the Elgin national championship for stock cars, won by the Lozier, all the road races of the year were open to non-stock cars, yet so confident was the American builder of the ability of his product to win that the largest fields of starters ever seen in road races were the rule rather than the exception.

The Vanderbilt race, open to racing cars of any style of construction under 600 inches piston displacement, was once more won by the American Alco; in fact, only one out of the ten cars to finish was of foreign make, while in the Fairmount Park race, open to racing cars of any size up to 750 inches displacement, an American Chadwick and a Lozier finished first and second, the first foreign car to finish being in fifth place.

On November 24 the Santa Monica free for all race was held, and was the most decisive victory ever achieved by a stock car over a foreign built racing car, for an American driver with a Lozier won the race in the phenomenal time of 72.29 miles per hour in competition with the foreign cars, the average made being the second fastest time ever made in the world.

Since 1907 the American stock car has won the majority of the great road contests held in America. In the Savannah races held in 1908 and 1910 the big, high powered foreign racing machines were victors, but in the 1910 running of the Grand Prize the showing made by the American stock cars was such as to encourage followers of the sport to believe that the American stock cars will in the future be able to hold their own in long distance events with the fastest special cars which the European factories are able to produce; in fact in the Savannah Grand Prize of 1910 while the first and second cars to finish were imported Benz racers, driven by Brown and Heuery, the only other cars to finish were the Marquette Buick, two Loziers and a Marmon, all American cars.

Recently the news has come from abroad that the Grand Prize contest of the old days is to be revived. Manufacturers have found that they have been losing the valuable lessons which racing has taught—lessons which the American manufacturer engaged in racing the last three years has been learning and taking to heart. A few years ago an American manufacturer would have considered the winning of a Grand Prize race the greatest honor which he could possibly achieve in the racing world, but the victories of the American cars the last two years have been so marked that it is doubtful if any attempt will be made by an American car to send a team abroad to contest for the French Grand Prize.

ACCESSORIES FOR THE CAR.

Some Auto Things That Are Especially Desirable.

There are certain things that every motorist has to have on his car, and these are called accessories. Nowadays manufacturers, while sticking to the prices they have put on their machines, qualify this by adding a wide equipment. It is the custom to offer, as a rule, lamps and horns with almost any car. When it comes to a question of a speedometer or a magneto, there is not always so much readiness. A good magneto is very important to the car, and costs much when it is really high grade. A list of cars in the Garden show, that are Standard equipped with Bosch magnetos, is this:

Acme, Alco, American, Simplex, Atlas, Autocar, Brush, Chadwick, Chalmers, Columbia, Corbin, Delauney-Belleville, Franklin, Haynes, Hudson, Hupmobile, Kissel, Knox, Locomobile, Lozier, Marmon, Matheson, Mercedes, Moline, Moon, National, Oldsmobile, Palmer-Singer, Peerless, Pierce-Arrow, Pope-Hartford, Premier, Pullman, Rainier, Royal Tourist, Selden, Amplex, Speedwell, Stearns, Stevens-Duryea, Stoddard-Dayton, Thomas, White and Winton.

The Bosch magnetos figure on practically all the fast cars in the races of this year.

There is another ignition system, that of the Witherbee Igniter Company, which has an igniter, a generator of high tension current, producing a spark similar to that of the magneto with the exception that the strength of the spark is independent of the speed at which it is driven. The heat and voltage of the spark are the same when the engine is being turned over by hand as it is when running at full speed. Many advantages are claimed for this, and although the igniter is a magneto in the broader sense of the word because it makes use of permanent magnetos in generating its current, the results produced are radically diffarent from any other heretofore.

Another prime necessary in automobiling is an efficient warning signal. Klaxon horns have reached the 40,000 mark in sales and to meet the increased demand this year the Lovell-McConell Company, the manufacturers, erected in Newark a large factory. There has been a great deal of discussion in the newspapers, especially by means of letters, over the Klaxon horn and whether its warning signal was one properly calculated to attract the attention of pedestrians or whether it made too much noise.

Men who have ridden in automobiles and have driven them much are familiar with the absolute carelessness that pedestrians are accustomed to use when it comes to walking in the streets and they know that some very sharp warning signal is absolutely imperative. Any one who has driven a car on which there is a Klaxon horn and has sounded his signal sharply knows the immediate effect that it has on any one who is walking in the path. The Klaxon horn has been so effective that its sound is heard almost everywhere that a car is driven.

There are other devices too, such as the Jericho horn, which gives a single distinctive mellow note, becoming very powerful at speed. It is claimed for the Jericho that it effectively warns pedestrians without frightening them. It was made in fact to conform largely with the Massachusetts law, which provides that no device for signalling shall be sounded so as to make a harsh, objectionable and unreasonable noise. The Jericho horn can be used on the cut out and it sounds clearly at any speed without racing the motor. It cannot cause a back pressure on the motor either.

The inaccessibility of oil cups and places where grease needs to be put in an automobile does not at all affect the man who carries a grease gun, and these have been made so that they will handily force either oil or grease into places where it is necessary, and the nozzle is made long so that it can be inserted almost anywhere without difficulty.

There are several makes of these, among which are the B-line and the Coplay, one of them an all metal oil-grease gun and the other a leather packed gun. These are manufactured by the Randall-Faichney Company in Boston, which also has a device for holding the number to the tail end of a car with a lamp above it fixed so that it will always shine readily on it. This is an electric lamp used in connection with an ignition battery or a separate set of dry cells.

Of all of the automobile accessories a most important one is the speedometer. Every owner is proud of the speed he can get out of his car, but more often it is necessary for him to know exactly what he is doing in the way of speed so as to keep within the law. It also helps him to tell things about the performances of his car and the true expense that his gasolene and oil are causing him.

It is necessary too to have a reliable speedometer in touring, because route books indicate advances in such a way that unless the speedometer or odometer were absolutely accurate it would be impossible to find the road exactly. The speedometer is a check on the efficiency of the car and also on its performances, because when an owner comes to know that with the spark and throttle in certain positions on level roads his car when running well should do so many miles an hour he can detect any lag in it at once through an accurate speedometer.

It also is easy for him to realize how soon he can come down from one spot to another without a clash of the gears and how fast he can go on greasy or slippery pavements or bad roads without prejudice to the car. The speed indicator, however, must keep its accuracy. Tests made by professional drivers on racecourses and by manufacturers and users on measured stretches have demonstrated that the Warner odometer, because of the principle on which it is made, is a most reliable speed indicator.

Another speedometer of value is the Stewart, made by the Stewart & Clark Manufacturing Company of Chicago. Speedometers are made in combination with clocks and oil or electric lights. The clocks are rim wind, doing away with the use of a key. There is a large market for speedometers, and practically every kind of an automobile has one of some kind or another.

There is as well the Jones speedometer, made by the maker of the live-map meter, a device that is used in connection with a wheel attachment to show routes. It is a lightweight circular instrument of nine or ten inches diameter, connected with the front wheel by a flexible shaft and gear set. In the instrument is a set of cogs reducing the speed down to such a degree that one of the paper disk inserts reels off only a hundred miles to one revolution.

The maps show on the margin the march, and reading from the centre is a record of the bridges to be crossed, rates of toll, grade crossings, police traps, repair stations, hotels, landmarks and the proper direction to take at the forks in roads or crossroads.

Another measurer of the roads is the Veeder odometer. The Veeder company has been in the business of making speedometers since the bicycle day sand has turned out odometers as well. There is a special odometer hub cap which the Veeder company produces which is designed to keep cases on joy riding chauffeurs. It is so arranged that it cannot be tampered with and shows absolutely the march made by the car, and therefore is a good guarantee that it has or has not been moved since the owner had his last opportunity to inspect it.

Shock absorbing devices are many and one of these is manufactured by the Kilgore Manufacturing Company of Boston. One of these was used on the Alco car driven by Harry Grant in the Vanderbilt cup race and has been used on other racing cars as well as on many automobiles owned by private owners. It is attached to the front end of the car outside the frame behind the axle and held to the frame by boring two holes through the centre of it.

It is made so that air within a cylinder is compressed slowly through from one end to the other of the compression cylinder as the piston works up and down with the motion of the car body. The cushions are arranged so that the shock is taken up easily and the medium used is elastic air, so that in effect when riding in the car you are riding on air.

SHOW OF NEW CADILLACS.

Five Models Are Displayed in the Garden —Not Room for All Types.

Five types of the Cadillac 30 are shown at the Garden show in space 16 on the main floor. A touring car and demi-tonneau at $1,700, a fore door touring car at $1,800, a torpedo at $1,850 and a limousine at $3,000 are these cars. There are also a $1,700 roadster and a coupé at $2,250, but lack of space prevents the showing of these. Besides the five cars displayed there is shown a chassis in operation, cut open to make plain the workings of the internals.

The cut open chassis was shown first by the Cadillac in 1904 at the show in that year. There is also an exhibit of parts, together with plug and snap gauges, which play an important part in the standardization of all Cadillac parts. There are 167 of such parts with a total of 237 dimensions, which are accurate to 1-1000th of an inch.

Changes in the 1911 line include a large bore of the cylinders. They have been increased from 4¼ inches to 4½, with a corresponding increase in power. The wheel base has been lengthened from 110 to 116 inches. The frame has a drop of 2½ inches. The wheel and tire size has come up from 32 by 4 inches to 34 by 4 inches. There are two complete ignition systems, Bosch magneto and Delco system, each with its own set of spark plugs. Either system is competent to operate the car independent of the other.

The specifications of the 1911 Cadillac are these: Four cylinder motor, four cycle, 4½ bore by 4½ stroke, cylinders cast singly, copper jacketed. There is a five bearing crankshaft. An automatic constant level splash lubricating system is used. A tubular and plate radiator is used in the cooling and gear driven centrifugal pumps are employed. The clutch is of the leather faced cone type with a spring ring in the flywheel. The carbureter is hot water jacketed with dash adjustment. Selective sliding gear transmission is used, there being three speeds forward and a reverse. The car has shaft drive. Timken full floating rear axle is used, with an I beam front axle. Timken bearings are used in the front wheels. The brakes are contracting and expanding double acting on rear drums, both sets equalizing. The steering gear is worm and gear sector type, adjustable. The steering wheel is 18 inches across.

The frame is dropped, made of steel in channel section. Spring suspension is semi-elliptic in front and three-quarter platform in the rear. Control spark and throttle levers are on steering wheel. Clutch and service brake are worked by the foot levers. Throttle accelerator is also by foot lever. There is an emergency hand brake, and gear shift by hand of course.

The standard equipment includes the double ignition system, gas and oil lamps, horn, speedometer, foot rails, robe rail and tire holders.