WEST LEADS IN PER CAPITA EXPENDITURE

East Relatively Far Behind than ordinary grades of rubber and it will give service in the same proin Funds for Roads.

POPULATION HERE SMALL

More Federal Assistance Required for States of Great Area and Few People

the highly improved roads of their own densely-populated and wealthy states, are frequently inclined to condemn western states for the condition of their main highways, and to feel that these vitally important public utilities are not receiving the same consideration west of the Mississippi that is given them in the east.

These tourists do not stop to consider the tremendous problems pre-

sider the tremendous problems pre-sented to the vast states west of the Mississippi which contain tremendous mileages of public roads, which under our present procedure of highway construction must be largely financed with funds obtained from a relatively

meager population.
Figures don't lie, and a compilation recently made from governmental data by J. David Larson, state consultor the Lincoln Highway association for Utah and secretary of the Salt Lake City Commercial club, show that on the only fair basis of comparison.

c. e. per capita expenditure for highways, the west is really doing more than the east to better highway con-

government as representing the total expenditure for highway maintenance and construction during the first ten months of 1819 and the funds still available for work this year and next, and figuring per capita expenditure on the basis of the 1910 census, Mr. Lawson shows that Utah heads the list in the amount expended, Not only that, but the first ten states in percapita expenditure for blebusy in capita expenditure for highway im-provement and maintenance are all west of the Mississippi river.

Fun
- \$27
16
. 15
- 11
2 8
- 8
- 45
. 5
. 5
. 5

STUTZ AGAIN HAS FAMOUS EN-GINEER PILOT.

as the man who not only successfully drove Stutz cars in all competitive races, but also was responsible for their building. Anderson was with the Stutz company from the very start, having carried on the experimental work of the first Stutz car mental work of the first Stutz car built and been with that company until the time of his going with the Revere Motor Car company some two years ago. His engineering abilities placed him at the head of the pro-duction department of the Revere company, first as engineer and later

as general superintendent.
Four years ago the Stutz company adopted the 15-valve motor on the strength of the experimental work over which Anderson had full charge and of the racing successes which

"By using 16-valve motors," said Anderson, "four-cylinder symplicity is maintained, giving all the advan-tages of power, speed, smoothness and flexibility gained by the multiple cylinder motor. The valves are neces-sarily smaller, eliminating the possi-bility of warping and crystalizing from high-speed service."

RUBBER SECRETS FOUND

PURE GUM NOT ABLE TO STAND MUCH WEAR.

Process of Manufacture and Use of Compounds Gives Great Life to Tires.

New facts about the preparation of rubber used in the manufacture of au-tomobile tires have been discovered by the Thermoid Rubber company of Trenton, N. J., according to Robert E. Alien of the Alien & Hebard company, Oregon distributors for Thermoid

"Pure rubber possesses little strength," said Mr. Allen, "so little, in fact, that a tire made of it alone would run perhaps 100 miles or, so, but certainly not farther. It is the compounding, the biending of the rubber with other ingredients that gives it toughness. The chemist and his becomes are used as necessary. his laboratory are just as necessary in the production of a good tire as the fabric and rubber which are a

tire's chief materials.
"The Thermold Crolide compound thre contains an entirely new com-

pound—Crolide—which is the result of over two years of patient experiment in the Thermoid laboratories. Blended with the rubber—and the most costly grade of fiber up-river Para is used in the new Thermoid tire—the effects of Crolide seem miraculous. Exact laboratory tests show this new rubber compound to be from 50 to several hundred per cent from 50 to several hundred per cent tougher, more resilient and more re-sistant to the attacks of oil and water

"Crolide is blended not only with the tread, but also in scientifically exact degrees with the rubber-treated fabric and helps to make the tire, when cured, a solid, impenetrable whole. Tread, cushion, breaker strips and all the piles of fabric, welded to-gether as they are, make this new tire so strongly fortified against wheel separation, fabric breaks resulting from bruises, cuts. blowouts and kin-dred troubles so common to average

tires, that unusual service is not the exception, but the rule. "The enduring qualities of Ther-moid Crolide compound tires are re-DETROIT, April 3.—Eastern tour-lats invading the west by motor car, and particularly those accustomed to the highly improved roads of their own densely populated and wealthy tires were tested in this manner and tires were tested in this manner and the results showed wonderful mileage

MAURO TIRE & REPAIR CO. IS LATEST IN FIELD.

Master Vulcanizer in Charge of Repair and Retread Work on Five New Machines.

The Western Vulcanizer agency for regon has just been obtained by the Mauro Tire & Repair company, at 123 Stark street. This is one of the best equipped shops in the northwest. The method used is the same as that followed by the leading manufacturers in turning out new tires, and eliminates entirely the necessity of using boots and old materials. All

this results in the repaired section outlasting any part of the casing, according to Mr. Mauro.

"The Western Vulcanizing equipment, just installed, is a masterpiece of human ingenuity and has for rival," he says.
"The outstanding features of the

Western molds are their ability to produce anti-skid retreads and per-fectly match the final cure. The matrices come in three sections and fit shugly in the moids. They are made of a special aluminum alloy. strong, durable and easily changed it matters not what the circumference or cross section of the tire may be, a perfect match will be formed in reasily work with this accionant.

west of the Mississippi river.

The majority of these western states are spending from two to three times as much per individual inhabitant upon road construction as any eastern state; this regardless of the fact that the total amount expended is far less than that available for the same purpose in wealthy eastern commonwealths, which in the main, in addition to having more money available, have less roads to improve and a smaller area to connect.

The following table prepared by Mr. Larson, giving the first ten states in the order of their per capita provision of funds for roads, indicates the vital interest of the west in highway improvement and the dire need for additional federal assistance if proper road conditions are to be provided.

Per Capita

State

Road Funds

Per Capita

Road Funds

Lutah

State

Road Funds

Road Funds

Lutah

State

Road Funds

State

State

Road Funds

Ro tions touching upon tire injuries and

WHAT MAGNETO REALLY IS Technical Subject Explained in

Easiest Terms.

A magneto is a mechanical means intained in one rugged unit. It supplies current for ignition only. It gives the most reliable spark for lighting

P. Van Datta of 287½ First street, Porliand, is the inventor of a new combination outing table and carrier that motor car owners will find convenient and useful. The feature of the table is that it is so constructed as to fold up like a box, in which camp structed is the result of the second structed as to fold up like a box, in the result of the second structed as to fold up like a box, in the result of the second structed as to fold up like a box, in the result of the second structed as to fold up like a box, in the united States by spreading the

way. When the car arrives at its des-

STUTZ ENGINEERING CHIEF BACK AT PLANT.



return of Gil Anderson, far racer and engineer, as head of racer and engineer, as head of the experimental engineering department of the Stutz Motor Car company of America, Inc., at Indianapolls. Mr. Anderson made his debut as a race driver and Stutz pilot in the first 500-mile race on the Indianapolls motor speedway in 1911. But not only has he driven Stutz cars then and since, but has been responsible for their building, such features as the 15-valve motor being due to his advice. THE CAR THE AMERICAN FAMILY OF



Hupmobile

How fortunate it is for us that the men who founded this business, set out with the simple idea of trying to build the best car of its class in the world. That clear-cut determination has led us to adopt policies which are careful and conscientious, and manufacturing principles which are sound and substantial. The net result has been a most unusual and cordial relation between ourselves and our public -based on the confidence which people have learned to place in the Hupmobile and the company which builds it.

HUPP MOTOR CAR CORPORATION

A. B. Manley,

MANLEY AUTO CO., Distributors. Eleventh and Oak at Burnside Phone Broadway 217

E. C. Habel, Sales Manager



MARINES USE THE ESSEX

STAUNCH CAR PROVES GREAT DESERT RAT.

Sergeant Taylor Hero of Picture cruiting Mission.

Man Responsible for Adoption of 16-Valve Motor Heads Experimentation Department.

The Essex is becoming known as the mightiest desert car that every mobile engine. It does not depend upon batteries or require a separate coil or timer. It does not require constant or expert attention, and, unlike the battery system, it is not subject to damage or weakening by continuous operation, short circuits or electrical leakage. In its established form a magneto is a mechanical, operating part of the engine and as such it is just as reliable.

Autto Lunches Made Easy

P. Van Datta of Portland Invents for any who not only successfully dreve Stutz cars in all competitives.

Those on the inside know him best as the man who not only successfully dreve Stutz cars in all competitives.

of the table is that it is so constructed as to fold up like a box, in which camp stools, thermos bottles, lunch things and such can be packed, and the whole thing slung on to the roar of the car, out of everybody's way.

When the car arrives at its destination or stops to make camp, it's a simple matter to unsling the box, take out the things, unfold the box into a table which is complete with into a table which is complete with our desert run. Its lightness, speed our desert run. Its lightness, speed and power are especially suited to desert conditions. Coming back we negotiated the Chuckawalla desert in two hours less than between Blythe and Mecca than is customary on that difficult route.

"We could do this because of the road-holding ability of Essex cars; and in the difficult 'sand going' which and in the difficult Sand going which prevails for 100 miles in that country we had no trouble whatsoever. We especially appreciated the cooling qualities of the Essex in such trying conditions and as a testimonial of its freedom from overheating I want to tell you that at no time during the round trip did we have to put one drop of water in the radiator."

NEW Construction at Franklin Plant

Progressing Rapidly. The construction of new buildings at the plant of the Franklin Automobile company at Syracuse is progressing rapidly. A large new seven-story building, costing \$400,000, has just been completed and occupancy taken, and another story is being added to building Z, now the largest of the Franklin buildings.

added to building Z, now the largest of the Franklin buildings.

Building Z will soon lose this distinction, however, with the completion of another large seven-story building now under way. This building will, when completed, contain 338,000 square feet of floor space and will cost \$900,000. It will be ready for occupancy about July 1.

A new power house and heating plant is also being built at a cost of \$400,000, including the equipment. The chimney to be used in connection with this latter building will be 250 feet high.

Lower Tariff on Foreign Cars. To encourage a wider market for foreign automobiles in this country, the reduction of 15 per cent in tariff on imported cars coesting \$2000 or more was advocated by members of

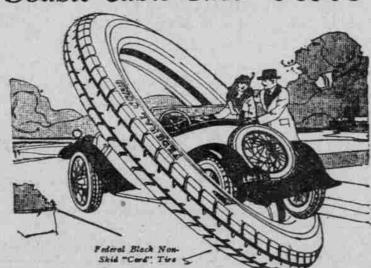
Own Fire Department.

Willys-Overland, where Overland and the Willys-Knight are made, has a fire department at its Toledo (Ohio)

gallons of water a minute, two steamers, one electric fire engine capable of discharging 2400 gallons of water per minute also is installed

a fire department at its Toledo (Ohio) Don't neglect necessary adjust-plant big enough for some cities, ments and repairs until it is too late Three pumps with a capacity of 1000 and you are laid up by the roadside

Double Cable Base Tires



"Long-Distance" Tire Service

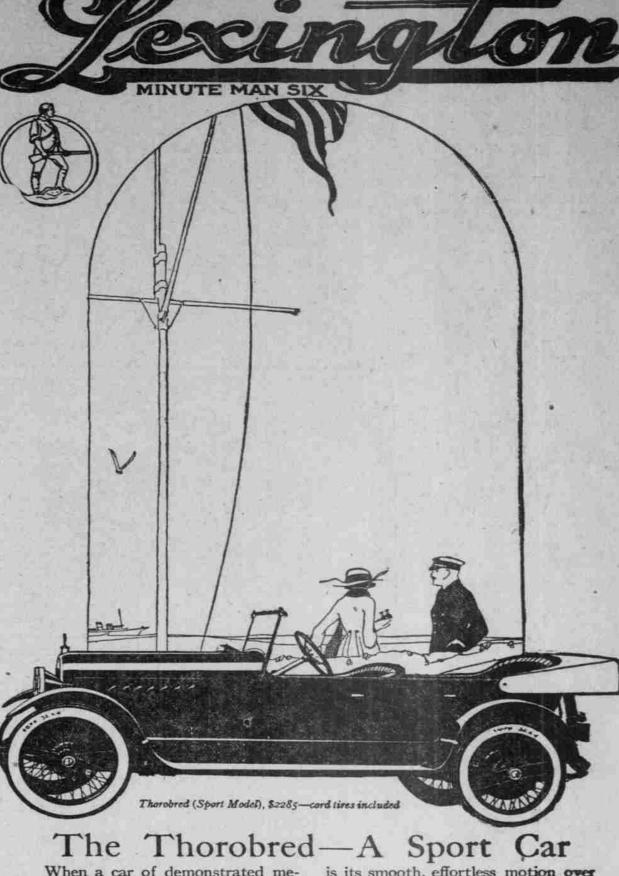
THERE is but one way to get ▲ Federal advantages and that is to use Federal Tires.

The Double-Cable-Base does away with rim cuts, blow outs just above the rim, tube pinching and other forms of rim damage.

To this improved construction Federal "Rugged," "Traffik" and "Cord" Tires owe their extra miles, which make them both popular and profitable. Let us explain why.

The Federal Rubber Company Factories, Cudaby, Wisconsin

DEALERS -- Write for exclusive proposition if we are not represented in your town. WEAVER TIRE COMPANY Oregon Vulcanizing Co.
833-825 BURNSIDE AT BROADWAY
Telephone Broadway 379.



When a car of demonstrated mechanical superiority also has-

-the leading sport style design-

-it affords a combination of performance and beauty that is irresist-

The remarkable success of the new Lexington Thorobred is traceable to these qualities—and its popularity has only begun!

There is more speed than anyone

is its smooth, effortless motion over rough roads.

You sink deep in luxurious seats, tilted at just the right angle for the low-hung body.

Its ease of control is almost unbelievable for a high-powered sport car.

Let us acquaint you with its many exclusive features, such as the Lexigasifier, which gives you more power from the present-day low-grade fuel than was formerly obtainable from probably ever needs, and, even better, high-test gas.

Thorobred (Sport Model), \$2285; Touring Car, \$2185; Lex-Sedan, \$2585; Sedanette, \$3150; Coupe, \$3150

BRUNN MOTOR CAR CO.

28-30 NORTH BROADWAY

Sold by the Pollowing Dealers: Buchholz-Cates Motor Car Co., Salem, Or. Columbia Highway Auto & Storage Co., Hood River, Or. Riley & Meier, Corvallis, Or.

Lexington Motor Company, Connersville, Indiana, U. S. A.



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-long and hard service

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which it has gone, and also in the illustrated

literature that we will gladly send free upon

The introduction here of the Ward La France has established a new rule among truck users, namely, not to buy a truck until first investigating the Ward La France.

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